



DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XB775]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Site Characterization Surveys off New Jersey and New York for Atlantic Shores Offshore Wind, LLC

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued an IHA to Atlantic Shores Offshore Wind, LLC to incidentally harass marine mammals during marine site characterization surveys off New Jersey and New York.

DATES: This Authorization is effective from April 20, 2022 through April 19, 2023.

FOR FURTHER INFORMATION CONTACT: Kelsey Potlock, Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>. In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the “take” of marine mammals, with certain exceptions. sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not

intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed incidental take authorization may be provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other “means of effecting the least practicable adverse impact” on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as “mitigation”); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth.

The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

Summary of Request

On August 16, 2021, NMFS received a request from Atlantic Shores for an IHA to take marine mammals incidental to marine site characterization surveys occurring in three locations (Lease Area and Export Cable Routes (ECR) North and South) off of New Jersey and New York in and around the area of Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf Lease Area (OCS)-A 0499. The application was deemed adequate and complete on December 13, 2021.

Atlantic Shores’ request is for take of a small number of 15 species of marine mammals (comprised of 16 stocks) by Level B harassment only. Neither Atlantic Shores nor NMFS

expects serious injury or mortality to result from this activity; therefore, an IHA is appropriate.

Description of Activities

Overview

As part of its overall marine site characterization survey operations, Atlantic Shores will conduct high-resolution geophysical (HRG) surveys in and around the Lease Area (OCS) -A 0499 and along potential submarine cable routes (ECRs North and South) to a landfall location in either New York or New Jersey.

The purpose of these surveys are to support the site characterization, siting, and engineering design of offshore wind facilities including wind turbine generators, offshore substations, and submarine cables within the Lease Area and along export cable routes (ECRs). As many as three survey vessels may operate concurrently. 360 days of survey days are planned with vessels operating for 24-hours as part of the planned surveys (Table 1). Underwater sound resulting from Atlantic Shores' planned site characterization survey activities, specifically certain acoustic sources operating at <180 kilohertz (kHz), has the potential to result in incidental take of marine mammals in the form of behavioral harassment (Table 2).

Table 1-- Number of Survey Days That Atlantic Shores Plans To Perform the Described HRG Survey Activities

Survey Area	Number of Active Survey Days Expected ¹
Lease Area	120
ECR North	180
ECR South	60
Total: 360 days	

¹ Surveys in each area may temporally overlap; therefore, actual number of days of activity in a given year would be less than 360.

Table 2-- Summary of Representative Equipment Specifications with Operating Frequencies Below 180 kHz

HRG Survey Equipment (Sub-bottom Profiler)	Representative Equipment Type	Operating Frequency Ranges (kHz)	Operational Source Level Ranges (dB _{RMS}) ^b	Beamwidth Ranges (degrees)	Typical Pulse Durations RMS (millisecond)	Pulse Repetition Rate (Hz)
<i>Sparker</i> (impulsive)	Applied Acoustics Dura-Spark 240 ^a	0.01 to 1.9	203	180	3.4	2
	Geo Marine Geo-Source	0.2 to 5	195	180	7.2	0.41
<i>CHIRPs</i> (non-impulsive)	Edgetech 2000-DSS	2 to 16	195	24	6.3	10
	Edgetech 216	2 to 16	179	17, 20, or 24	10	10
	Edgetech 424	4 to 24	180	71	4	2
	Edgetech 512i	0.7 to 12	179	80	9	8
	Pangeosubsea Sub-Bottom Imager TM	4 to 12.5	190	120	4.5	44

Note – Two sources with potential for use by Atlantic Shores (*i.e.*, the INNOMAR SES-2000 Medium-100 Parametric and the INNOMAR deep-36 Parametric) are not expected to result in take due to their higher frequencies and extremely narrow beamwidths. Because of this, these sources were not considered when calculating the Level B harassment isopleths and are not discussed further in this notice. Acoustic parameters on these parametric sub-bottom profilers can be found in Atlantic Shores' IHA application on NMFS' website (<https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-other-energy-activities-renewable>).

^a - Atlantic Shores discussed with NMFS and include information in their application that while the Applied Acoustics Dura-Spark 240 is planned to be used during survey activities, the equipment specifications and subsequent analysis are based on the SIG ELC 820 with a power level of 750 joules (J) at a 5 meter depth (Crocker and Fratantonio (2016)). However, Atlantic Shores expects a more reasonable power level to be 500-600 J based on prior experience with HRG surveys; 750 J was used as a worst-case scenario to conservatively account for take of marine mammals as these higher electrical outputs would only be used in areas with denser substrates (700-800 J).

^b - Root mean square (RMS) = 1 microPa

Mitigation, monitoring, and reporting measures are described in detail later in this document (please see **Mitigation and Monitoring and Reporting**).

A detailed description of the planned surveys by Atlantic Shores are provided in the **Federal Register** notice of the proposed IHA (87 FR 4200; January 27, 2022). Since that time, no changes have been made to the survey activities. Therefore, a detailed description is not provided here. Please refer to that **Federal Register** notice for the description of the specified activities.

Comments and Responses

A notice of NMFS' proposal to issue an IHA to Atlantic Shores was published in the **Federal Register** on January 27, 2022 (87 FR 4200). That proposed notice described, in detail, Atlantic Shores' activities, the marine mammal species that may be affected by the activities, and the anticipated effects on marine mammals. In that notice, we requested public input on the request for authorization described therein, our analyses, the proposed authorization, and any other aspect of the notice of proposed IHA, and requested that interested persons submit relevant information, suggestions, and comments. This proposed notice was available for a 30-day public comment period.

NMFS received 11 individual comments from private citizens. Eight of these expressed general opposition to or support for the IHA and the underlying associated activities and two specifically addressed concerns regarding construction of a wind energy facility itself, which is outside the scope of NMFS' action considered herein. We do not specifically address these comments, or non-substantive comments expressing general opposition or support from private citizens, in further detail. Additionally, NMFS received two letters from environmental non-governmental organizations (eNGOs) (Oceana, Inc. and Clean Ocean Action (COA)) and one letter from a local citizen group (Save Long Beach Island (LBI)). All substantive comments, and NMFS' responses, are provided below, and the letters are available online at:

www.fisheries.noaa.gov/action/incidental-take-authorization-atlantic-shores-offshore-

wind-llc-marine-site-0). Please review the corresponding public comment link for full details regarding the comments, letters, and underlying justification.

Comment 1: Oceana made comments objecting to NMFS' renewal process regarding the extension of any one-year IHA with a truncated 15-day public comment period, and suggested an additional 30-day public comment period is necessary for any renewal request.

NMFS' response: NMFS' IHA renewal process meets all statutory requirements. In prior responses to comments about IHA renewals (*e.g.*, 84 FR 52464; October 2, 2019 and 85 FR 53342, August 28, 2020), NMFS has explained how the renewal process, as implemented, is consistent with the statutory requirements contained in section 101(a)(5)(D) of the MMPA, and, further, promotes NMFS' goals of improving conservation of marine mammals and increasing efficiency in the MMPA compliance process. Therefore, we intend to continue implementing the renewal process.

The Notice of the proposed IHA published in the **Federal Register** on January 27, 2022 (87 FR 4200) made clear that the agency was seeking comment on the proposed IHA and the potential issuance of a renewal for this survey. Because any renewal is limited to another year of identical or nearly identical activities in the same location or the same activities that were not completed within the 1-year period of the initial IHA, reviewers have the information needed to effectively comment on both the immediate proposed IHA and a possible 1-year renewal, should the IHA holder choose to request one in the coming months.

While there would be additional documents submitted with a renewal request, for a qualifying renewal these would be limited to documentation that NMFS would make available and use to verify that the activities are identical to those in the initial IHA, are

nearly identical such that the changes would have either no effect on impacts to marine mammals or decrease those impacts, or are a subset of activities already analyzed and authorized but not completed under the initial IHA. NMFS would also need to confirm, among other things, that the activities would occur in the same location; involve the same species and stocks; provide for continuation of the same mitigation, monitoring, and reporting requirements; and that no new information has been received that would alter the prior analysis. The renewal request would also contain a preliminary monitoring report, in order to verify that effects from the activities do not indicate impacts of a scale or nature not previously analyzed. The additional 15-day public comment period provides the public an opportunity to review these few documents, provide any additional pertinent information and comment on whether they think the criteria for a renewal have been met. Between the initial 30-day comment period on these same activities and the additional 15 days, the total comment period for a renewal is 45 days.

In addition to the IHA renewal process being consistent with all requirements under section 101(a)(5)(D), it is also consistent with Congress' intent for issuance of IHAs to the extent reflected in statements in the legislative history of the MMPA. Through the provision for renewals in the regulations, description of the process and express invitation to comment on specific potential renewals in the Request for Public Comments section of each proposed IHA, the description of the process on NMFS' website, further elaboration on the process through responses to comments such as these, posting of substantive documents on the agency's website, and provision of 30 or 45 days for public review and comment on all proposed initial IHAs and Renewals respectively, NMFS has ensured that the public is “invited and encouraged to participate fully in the agency's decision-making process”, as Congress intended.

Comment 2: Oceana and COA remarked that NMFS must utilize the best available science. The commenters further suggest that NMFS has not done so, specifically, referencing information regarding the NARW such as updated population estimates and recent habitat usage patterns in Atlantic Shores' survey area. The commenters specifically asserted that NMFS is not using the best available science with regards to the North Atlantic right whale (NARW) population estimate and state that NMFS should be using the 336 estimate presented in the recent North Atlantic Right Whale Report Card (<https://www.narwc.org/report-cards.html>).

NMFS' response: While NMFS agrees that the best available science should be used for assessing NARW abundance estimates, we disagree that the North Atlantic Right Whale Report Card (*i.e.*, Pettis *et al.* (2022)) study represents the most recent and best available estimate for NARW abundance. Rather the revised abundance estimate (368; 95 percent with a confidence interval of 356-378) published by Pace (2021) (and subsequently included in the 2021 draft Stock Assessment Reports (SARs; <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports>)), which was used in the proposed IHA, provides the most recent and best available estimate, and introduced improvements to NMFS' right whale abundance model. Specifically, Pace (2021) looked at a different way of characterizing annual estimates of age-specific survival. NMFS considered all relevant information regarding NARW, including the information cited by the commenters. However, NMFS relies on the SAR. Recently (after publication of the notice of proposed IHA), NMFS has updated its species webpage to recognize the population estimate for NARWs is now below 350 animals (<https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>). We anticipate that this information will be presented in the draft 2022 SAR. We note that this change in abundance estimate would not change the estimated take of NARWs or

authorized take numbers, nor affect our ability to make the required findings under the MMPA for Atlantic Shores' survey activities.

NMFS further notes that the commenters seem to be conflating the phrase "best available data" with "the most recent data." The MMPA specifies that the "best available data" must be used, which does not always mean the most recent. As is NMFS' prerogative, we referenced the best available NARW abundance estimate of 368 from the draft 2021 SARs as NMFS's determination of the best available data that we relied on in our analysis. The Pace (2021) results strengthened the case for a change in mean survival rates after 2010-2011, but did not significantly change other current estimates (population size, number of new animals, adult female survival) derived from the model. Furthermore, NMFS notes that the SARs are peer reviewed by other scientific review groups prior to being finalized and published and that the North Atlantic Right Whale Report Card (Pettis *et al.*, 2022) does not undertake this process.

The commenters also noted their concern regarding NARW habitat usage, stating that NMFS was not appropriately considering relevant information on this topic. While this survey specifically intersects migratory habitat for NARWs, year-round "core" NARW foraging habitat (Oleson *et al.*, 2020) located much further north in the southern area of Martha's Vineyard and Nantucket Islands where both visual and acoustic detections of NARWs indicate a nearly year-round presence (Oleson *et al.*, 2020). NMFS notes that prey for NARWs are mobile and broadly distributed throughout the survey area; therefore, NARW foraging efforts are not likely to be disturbed given the location of these planned activities in relation to the broader area that NARWs migrate through and the northern areas where NARWs primarily forage. There is ample foraging habitat further north of this survey area that will not be ensonified by the acoustic sources used by Atlantic Shores, such as in the Great South Channel and Georges Bank Shelf Break

feeding biologically important area (BIA). Furthermore, and as discussed in the proposed Notice, the spatial acoustic footprint of the survey is very small relative to the spatial extent of the available foraging habitat.

Lastly, as we stated in the proposed Notice, any impacts to marine mammals are expected to be temporary and minor and, given the relative size of the survey area compared to the overall migratory route leading to foraging habitat (which is not affected by the specified activity). Comparatively, the survey area is approximately 5,868 square kilometers (km²) and the NARW migratory BIA is 269,448 km². Because of this, and in context of the minor, low-level nature of the impacts expected to result from the planned survey, such impacts are not expected to result in disruption to biologically important behaviors.

Comment 3: Oceana noted that chronic stressors are an emerging concern for NARW conservation and recovery, and stated that chronic stress may result in energetic effects for NARWs. Oceana suggested that NMFS has not fully considered both the use of the area and the effects of both acute and chronic stressors on the health and fitness of NARWs, as disturbance responses in NARWs could lead to chronic stress or habitat displacement, leading to an overall decline in their health and fitness.

NMFS' response: NMFS agrees with Oceana that both acute and chronic stressors are of concern for NARW conservation and recovery. We recognize that acute stress from acoustic exposure is one potential impact of these surveys, and that chronic stress can have fitness, reproductive, etc. impacts at the population-level scale. NMFS has carefully reviewed the best available scientific information in assessing impacts to marine mammals, and recognizes that the surveys have the potential to impact marine mammals through behavioral effects, stress responses, and auditory masking. However, NMFS does not expect that the generally short-term, intermittent, and transitory marine site

characterization survey activities planned by Atlantic Shores would create conditions of acute or chronic acoustic exposure leading to long-term physiological stress responses in marine mammals. NMFS has also prescribed a robust suite of mitigation measures, including extended distance shutdowns for NARW, that are expected to further reduce the duration and intensity of acoustic exposure, while limiting the potential severity of any possible behavioral disruption. The potential for chronic stress was evaluated in making the determinations presented in NMFS's negligible impact analyses. Because NARWs generally use this location in a transitory manner, specifically for migration, any potential impacts from these surveys are lessened for other behaviors due to the brief periods where exposure is possible. In context of these expected low-level impacts, which are not expected to meaningfully affect important behavior, we also refer again to the large size of the migratory corridor (BIA of 269,448 km²) compared with the survey area (5,868 km²). Thus, the transitory nature of NARWs at this location means it is unlikely for any exposure to cause chronic effects as Atlantic Shores' planned survey area and ensonified zones are much smaller than the overall migratory corridor. Because of this, NMFS does not expect acute or cumulative stress to be a detrimental factor to NARWs from Atlantic Shores' described survey activities.

Comment 4: Oceana and COA asserted that NMFS must fully consider the discrete effects of each activity and the cumulative effects of the suite of approved, proposed and potential activities on marine mammals and NARWs in particular and ensure that the cumulative effects are not excessive before issuing or renewing an IHA.

NMFS' response: Neither the MMPA nor NMFS' codified implementing regulations call for consideration of other unrelated activities and their impacts on populations. The preamble for NMFS' implementing regulations (54 FR 40338; September 29, 1989) states in response to comments that the impacts from other past and

ongoing anthropogenic activities are to be incorporated into the negligible impact analysis via their impacts on the baseline. Consistent with that direction, NMFS has factored into its negligible impact analysis the impacts of other past and ongoing anthropogenic activities via their impacts on the baseline, *e.g.*, as reflected in the density/distribution and status of the species, population size and growth rate, and other relevant stressors. The 1989 final rule for the MMPA implementing regulations also addressed public comments regarding cumulative effects from future, unrelated activities. There NMFS stated that such effects are not considered in making findings under section 101(a)(5) concerning negligible impact. In this case, this IHA, as well as other IHAs currently in effect or proposed within the specified geographic region, are appropriately considered an unrelated activity relative to the others. The IHAs are unrelated in the sense that they are discrete actions under section 101(a)(5)(D), issued to discrete applicants.

Section 101(a)(5)(D) of the MMPA requires NMFS to make a determination that the take incidental to a “specified activity” will have a negligible impact on the affected species or stocks of marine mammals. NMFS' implementing regulations require applicants to include in their request a detailed description of the specified activity or class of activities that can be expected to result in incidental taking of marine mammals. 50 CFR 216.104(a)(1). Thus, the “specified activity” for which incidental take coverage is being sought under section 101(a)(5)(D) is generally defined and described by the applicant. Here, Atlantic Shores was the applicant for the IHA, and we are responding to the specified activity as described in that application (and making the necessary findings on that basis).

Through the response to public comments in the 1989 implementing regulations, NMFS also indicated (1) that we would consider cumulative effects that are reasonably

foreseeable when preparing a NEPA analysis, and (2) that reasonably foreseeable cumulative effects would also be considered under section 7 of the ESA for ESA-listed species, as appropriate. Accordingly, NMFS has written Environmental Assessments (EA) that addressed cumulative impacts related to substantially similar activities, in similar locations, *e.g.*, the 2017 Ocean Wind, LLC EA for site characterization surveys off New Jersey; the 2018 Deepwater Wind EA for survey activities offshore Delaware, Massachusetts, and Rhode Island; the 2019 Avangrid EA for survey activities offshore North Carolina and Virginia; and the 2019 Orsted EA for survey activities offshore southern New England. Cumulative impacts regarding issuance of IHAs for site characterization survey activities such as those planned by Atlantic Shores have been adequately addressed under NEPA in prior environmental analyses that support NMFS' determination that this action is appropriately categorically excluded from further NEPA analysis. NMFS independently evaluated the use of a categorical exclusion for issuance of Atlantic Shores' IHA, which included consideration of extraordinary circumstances. Please see our response to Comment #21 below for more details.

Separately, the cumulative effects of substantially similar activities in the same geographic region have been analyzed in the past under section 7 of the ESA when NMFS has engaged in formal intra-agency consultation, such as the 2013 programmatic Biological Opinion for BOEM Lease and Site Assessment Rhode Island, Massachusetts, New York, and New Jersey Wind Energy Areas (<https://repository.library.noaa.gov/view/noaa/29291>). Analyzed activities include those for which NMFS issued Atlantic Shores' 2020 IHA and subsequent 2021 renewal IHA (85 FR 21198; April 16, 2020 and 86 FR 21289; April 22, 2021), which are substantially similar to those planned by Atlantic Shores under this current IHA request. This Biological Opinion determined that NMFS' issuance of IHAs for site characterization survey activities associated with leasing, individually *and* cumulatively, are not likely to

adversely affect listed marine mammals. NMFS notes, that while issuance of this IHA is covered under a different consultation, this BiOp remains valid and the surveys currently planned by Atlantic Shores from 2022 to 2023 could have fallen under the scope of those analyzed previously.

Comment 5: LBI has concluded that NMFS should include nearby survey activities in the analysis of this IHAs, specifically activities occurring in the Ocean Wind 1 (OCS-A 0498), as Atlantic Shores' survey activities are occurring during similar timeframes in similar spatial locations to the lease owned by Orsted Wind Power North America, LLC (Orsted). They noted that this was specifically important given the large number of offshore wind-related activities being considered in the northeast region and to appropriately assess cumulative impacts between projects.

NMFS' response: NMFS disagrees with LBI's statement that activities occurring by Orsted and Atlantic Shores' should be considered together in the MMPA action on that basis that they share a similar location geographically. We reiterate that under the MMPA, we are required to consider applications upon request. To date, NMFS has not received any joint application from Orsted and Atlantic Shores regarding their site characterization surveys off of New Jersey. While an individual company owning multiple lease areas may apply for a single authorization to conduct site characterization surveys across a combination of those lease areas, such as what was done by Orsted in their recent surveys from New York to Massachusetts (see 85 FR 63508, October 8, 2020; 87 FR 13975, March 11, 2022), this is not applicable in this case to the leases owned by Atlantic Shores and Orsted found off New Jersey. In the future, if applicants wish to undertake this approach, NMFS is open to the receipt of joint applications and additional discussions on joint actions.

Furthermore, NMFS notes that the site characterization surveys covered under the current IHA (86 FR 26465; May 14, 2021) in Ocean Wind's lease are due to expire on May 9, 2022. While Ocean Wind has requested a renewal IHA and NMFS is seeking public comment on that request (87 FR 21098; April 11, 2022), NMFS has not yet made a decision to issue a final renewal IHA, entailing minimal current temporal overlap in activities performed under this IHA by Atlantic Shores to Ocean Wind's existing action (approximately 19 days of overlap). However, NMFS again notes that these both of these actions (Atlantic Shores' and Orsted's site characterization surveys) are occurring in spatially distinct areas and that it is highly unlikely for both entity's survey activities to occur in the same location at any one time. NMFS continues to reaffirm that any other authorization issued to Orsted relating to activities in OCS-A 0498 would be considered a discrete activity (refer back to the discussion in Comment #4) with its own separate and independent action.

Comment 6: Oceana states that NMFS must make an assessment of which activities, technologies and strategies are truly necessary to provide information to inform development of Atlantic Shores and which are not critical, asserting that NMFS should prescribe the appropriate survey techniques. In general, Oceana stated that NMFS must require that all IHA applicants minimize the impacts of underwater noise to the fullest extent feasible, including through the use of best available technology and methods to minimize sound levels from geophysical surveys.

NMFS' response: The MMPA requires that an IHA include measures that will effect the least practicable adverse impact on the affected species and stocks and, in practice, NMFS agrees that the IHA should include conditions for the survey activities that will first avoid adverse effects on NARWs in and around the survey site, where practicable, and then minimize the effects that cannot be avoided. NMFS has determined

that the IHA meets this requirement to effect the least practicable adverse impact. Oceana does not make any specific recommendations of measures to add to the IHA. As part of the analysis for all marine site characterization survey IHAs, NMFS evaluated the effects expected as a result of the specified activity, made the necessary findings, and prescribed mitigation requirements sufficient to achieve the least practicable adverse impact on the affected species and stocks of marine mammals. It is not within NMFS' purview to make judgments regarding what may be appropriate techniques or technologies for an operator's survey objectives.

Comment 7: Oceana suggests that PSOs complement their survey efforts using additional technologies, such as infrared detection devices when in low-light conditions.

NMFS' response: NMFS agrees with Oceana regarding this suggestion and a requirement to utilize a thermal (infrared) device during low-light conditions was included in the proposed **Federal Register** Notice. That requirement is included as a requirement of the issued IHA.

Comment 8: Oceana and COA recommended that NMFS restrict all vessels of all sizes associated with the proposed survey activities to speeds less than 10 knots (kn) at all times due to the risk of vessel strikes to NARWs and other large whales.

NMFS' response: While NMFS acknowledges that vessel strikes can result in injury or mortality, we have analyzed the potential for ship strike resulting from Atlantic Shores' activity and have determined that based on the nature of the activity and the required mitigation measures specific to vessel strike avoidance included in the IHA, potential for vessel strike is so low as to be discountable. These mitigation measures, most of which were included in the proposed IHA and all of which are required in the final IHA, include: A requirement that all vessel operators comply with 10 kn (18.5

km/hour) or less speed restrictions in any SMA, DMA or Slow Zone while underway, and check daily for information regarding the establishment of mandatory or voluntary vessel strike avoidance areas (SMAs, DMAs, Slow Zones) and information regarding NARW sighting locations; a requirement that all vessels greater than or equal to 19.8 m in overall length operating from November 1 through April 30 operate at speeds of 10 kn (18.5 km/hour) or less; a requirement that all vessel operators reduce vessel speed to 10 kn (18.5 km/hour) or less when any large whale, any mother/calf pairs, pods, or large assemblages of non-delphinid cetaceans are observed near the vessel; a requirement that all survey vessels maintain a separation distance of 500 m or greater from any ESA-listed whales or other unidentified large marine mammals visible at the surface while underway; a requirement that, if underway, vessels must steer a course away from any sighted ESA-listed whale at 10 kn or less until the 500 m minimum separation distance has been established; a requirement that, if an ESA-listed whale is sighted in a vessel's path, or within 500 m of an underway vessel, the underway vessel must reduce speed and shift the engine to neutral; a requirement that all vessels underway must maintain a minimum separation distance of 100 m from all non-ESA-listed baleen whales; and a requirement that all vessels underway must, to the maximum extent practicable, attempt to maintain a minimum separation distance of 50 m from all other marine mammals, with an understanding that at times this may not be possible (*e.g.*, for animals that approach the vessel). We have determined that the ship strike avoidance measures in the IHA are sufficient to ensure the least practicable adverse impact on species or stocks and their habitat. Furthermore, no documented vessel strikes have occurred for any marine site characterization surveys which were issued IHAs from NMFS during the survey activities themselves or while transiting to and from survey sites.

Comment 9: Oceana suggests that NMFS require vessels maintain a separation distance of at least 500 m from NARWs at all times.

NMFS' response: NMFS agrees with Oceana regarding this suggestion and a requirement to maintain a separation distance of at least 500 m from NARWs at all times was included in the proposed **Federal Register** Notice and was included as a requirement in the issued IHA.

Comment 10: Oceana recommended that the IHA should require all vessels supporting site characterization to be equipped with and using Class A Automatic Identification System (AIS) devices at all times while on the water. Oceana suggested this requirement should apply to all vessels, regardless of size, associated with the survey.

NMFS' response: NMFS is generally supportive of the idea that vessels involved with survey activities be equipped with and using Class A Automatic Identification System (devices) at all times while on the water. Indeed, there is a precedent for NMFS requiring such a stipulation for geophysical surveys in the Atlantic Ocean (38 FR 63268, December 7, 2018); however, these activities carried the potential for much more significant impacts than the marine site characterization surveys to be carried out by Atlantic Shores, with the potential for both Level A and Level B harassment take. Given the small isopleths and small numbers of take authorized by this IHA, NMFS does not agree that the benefits of requiring AIS on all vessels associated with the survey activities outweighs and warrants the cost and practicability issues associated with this requirement.

Comment 11: Oceana asserts that the IHA must include requirements to hold all vessels associated with site characterization surveys accountable to the IHA requirements, including vessels owned by the developer, contractors, employees, and others regardless of ownership, operator, and contract. They state that exceptions and exemptions will create enforcement uncertainty and incentives to evade regulations through reclassification and redesignation. They recommend that NMFS simplify this by

requiring all vessels to abide by the same requirements, regardless of size, ownership, function, contract or other specifics.

NMFS' response: NMFS agrees with Oceana and required these measures in the proposed IHA and final IHA. The IHA requires that a copy of the IHA must be in the possession of Atlantic Shores, the vessel operators, the lead PSO, and any other relevant designees of Atlantic Shores operating under the authority of this IHA. The IHA also states that Atlantic Shores must ensure that the vessel operator and other relevant vessel personnel, including the Protected Species Observer (PSO) team, are briefed on all responsibilities, communication procedures, marine mammal monitoring protocols, operational procedures, and IHA requirements prior to the start of survey activity, and when relevant new personnel join the survey operations.

Comment 12: Oceana stated that the IHA must include a requirement for all phases of the Atlantic Shores site characterization to subscribe to the highest level of transparency, including frequent reporting to federal agencies, requirements to report all visual and acoustic detections of NARWs and any dead, injured, or entangled marine mammals to NMFS or the Coast Guard as soon as possible and no later than the end of the PSO shift. Oceana states that to foster stakeholder relationships and allow public engagement and oversight of the permitting, the IHA should require all reports and data to be accessible on a publicly available website.

NMFS' response: NMFS agrees with the need for reporting and indeed, the MMPA calls for IHAs to incorporate reporting requirements. As included in the proposed IHA, the final IHA includes requirements for reporting that supports Oceana's recommendations. Atlantic Shores is required to submit a monitoring report to NMFS within 90 days after completion of survey activities that fully documents the methods and monitoring protocols, summarizes the data recorded during monitoring, and describes,

assesses and compares the effectiveness of monitoring and mitigation measures. PSO datasheets or raw sightings data must also be provided with the draft and final monitoring report. Further the draft IHA and final IHA stipulate that if a NARW is observed at any time by any survey vessels, during surveys or during vessel transit, Atlantic Shores must immediately report sighting information to the NMFS North Atlantic Right Whale Sighting Advisory System and to the U.S. Coast Guard, and that any discoveries of injured or dead marine mammals be reported by Atlantic Shores to the Office of Protected Resources, NMFS, and to the New England/Mid-Atlantic Regional Stranding Coordinator as soon as feasible. All reports and associated data submitted to NMFS are included on the website for public inspection

Comment 13: Oceana and LBI recommended increasing the Exclusion Zone to either 1,000 m or 2,500 m, respectively, for NARWs.

NMFS' response: NMFS notes that the 500 m Exclusion Zone for NARWs exceeds the modeled distance to the largest 160 dB Level B harassment isopleth distance (141 m during sparker use) by a substantial margin. Commenters do not provide a compelling rationale for why the Exclusion Zone should be even larger. Given that these surveys are relatively low impact and that, regardless, NMFS has prescribed a NARW Exclusion Zone that is significantly larger (500 m) than the conservatively estimated largest harassment zone (141 m), NMFS has determined that the Exclusion Zone is appropriate. Further, Level A harassment is expected to result even in the absence of mitigation, given the characteristics of the sources planned for use. As described in the Mitigation section, NMFS has determined that the prescribed mitigation requirements are sufficient to effect the least practicable adverse impact on all affected species or stocks.

Comment 14: Oceana and LBI recommended that NMFS should require PAM at all times to maximize the probability of detection for NARWs. Commenters provided

recommendations that NMFS should require Passive Acoustic Monitoring (PAM) at all times, both day and night, to maximize the probability of detection for NARWs, as well as other species and stocks. A private citizen also submitted a question regarding what other mitigation measures and approaches could be undertaken if a marine mammal is present in the area during survey activities but goes unobserved by PSOs.

NMFS' response: The commenters do not explain why they expect that PAM would be effective in detecting vocalizing mysticetes, nor does NMFS agree that this measure is warranted, as it is not expected to be effective for use in detecting the species of concern. It is generally accepted that, even in the absence of additional acoustic sources, using a towed passive acoustic sensor to detect baleen whales (including NARWs) is not typically effective because the noise from the vessel, the flow noise, and the cable noise are in the same frequency band and will mask the vast majority of baleen whale calls. Vessels produce low-frequency noise, primarily through propeller cavitation, with main energy in the 5-300 Hertz (Hz) frequency range. Source levels range from about 140 to 195 decibel (dB) re 1 μ Pa (micropascal) at 1 m (NRC, 2003; Hildebrand, 2009), depending on factors such as ship type, load, and speed, and ship hull and propeller design. Studies of vessel noise show that it appears to increase background noise levels in the 71-224 Hz range by 10-13 dB (Hatch *et al.*, 2012; McKenna *et al.*, 2012; Rolland *et al.*, 2012). PAM systems employ hydrophones towed in streamer cables approximately 500 m behind a vessel. Noise from water flow around the cables and from strumming of the cables themselves is also low-frequency and typically masks signals in the same range. Experienced PAM operators participating in a recent workshop (Thode *et al.*, 2017) emphasized that a PAM operation could easily report no acoustic encounters, depending on species present, simply because background noise levels rendered any acoustic detection impossible. The same workshop report stated that a typical eight-element array towed 500 m behind a vessel could be expected to detect delphinids, sperm

whales, and beaked whales at the required range, but not baleen whales, due to expected background noise levels (including seismic noise, vessel noise, and flow noise).

There are several additional reasons why we do not agree that use of PAM is warranted for 24-hour HRG surveys. While NMFS agrees that PAM can be an important tool for augmenting detection capabilities in certain circumstances, its utility in further reducing impact during HRG survey activities is limited. First, for this activity, the area expected to be ensonified above the Level B harassment threshold is relatively small (a maximum of 141 m); this reflects the fact that, to start with, the source level is comparatively low and the intensity of any resulting impacts would be lower level and, further, it means that inasmuch as PAM will only detect a portion of any animals exposed within a zone, the overall probability of PAM detecting an animal in the harassment zone is low. Together these factors support the limited value of PAM for use in reducing take with smaller zones. PAM is only capable of detecting animals that are actively vocalizing, while many marine mammal species vocalize infrequently or during certain activities, which means that only a subset of the animals within the range of the PAM would be detected (and potentially have reduced impacts). Additionally, localization and range detection can be challenging under certain scenarios. For example, odontocetes are fast moving and often travel in large or dispersed groups which makes localization difficult.

Given that the effects to marine mammals from the types of surveys authorized in this IHA are expected to be limited to low level behavioral harassment even in the absence of mitigation, the limited additional benefit anticipated by adding this detection method (especially for NARWs and other low frequency cetaceans, species for which PAM has limited efficacy), and the cost and impracticability of implementing a full-time PAM program, we have determined the current requirements for visual monitoring are

sufficient to ensure the least practicable adverse impact on the affected species or stocks and their habitat. NMFS has previously provided discussions on why PAM isn't a required monitoring measure during HRG survey IHAs in past **Federal Register** notices (see 86 FR 21289, April 22, 2021 and 87 FR 13975, March 11, 2022 for examples).

Regarding monitoring for species that may be present yet go unobserved, NMFS recognizes that visual detection based mitigation approaches are not 100 percent effective. Animals are missed because they are underwater (availability bias) or because they are available to be seen, but are missed by observers (perception and detection biases) (*e.g.*, Marsh and Sinclair, 1989). However, visual observation remains one of the best available methods for marine mammal detection. Although it is likely that some marine mammals may be present yet unobserved within the harassment zone, all expected take of marine mammals has been appropriately authorized. For mysticete species in general, it is unlikely that an individual would occur within the estimated 141 m harassment zone and remain undetected. For NARW in particular, the required Exclusion Zone is 500 m and, therefore, it is even less likely that an individual would approach the harassment zone undetected.

Comment 15: Oceana recommends a shutdown requirement if a NARW or other ESA-listed species is detected in the clearance zone as well as a publically available explanation of any exemptions as to why the applicant would not be able to shutdown in these situations.

NMFS' response: There are several shutdown requirements described in the **Federal Register** notice of the proposed IHA (87 FR 4200, January 27, 2022), and which are included in the final IHA, including the stipulation that geophysical survey equipment must be immediately shut down if any marine mammal is observed within or entering the relevant Exclusion Zone while geophysical survey equipment is operational. There is no

exemption for the shutdown requirement. In regards to reporting, Atlantic Shores must notify NMFS if a NARW is observed at any time by any survey vessels during surveys or during vessel transit. Additionally, Atlantic Shores is required to report the relevant survey activity information, such as the type of survey equipment in operation, acoustic source power output while in operation, and any other notes of significance (*i.e.*, pre-clearance survey, ramp-up, shutdown, end of operations, etc.) as well as the estimated distance to an animal and its heading relative to the survey vessel at the initial sighting and survey activity information. As documented in Atlantic Shores' preliminary monitoring report for the surveys completed under the previous 2020-2021 IHA (report available on our website at <https://www.fisheries.noaa.gov/action/incidental-take-authorization-atlantic-shores-offshore-wind-llc-marine-site-characterization>), 34 events occurred where a shutdown was necessitated. We note that if a right whale is detected within the Exclusion Zone before a shutdown is implemented, the right whale and its distance from the sound source, including if it is within the Level B harassment zone, would be reported in Atlantic Shores' final monitoring report and made publicly available on NMFS' website. Atlantic Shores is required to immediately notify NMFS of any sightings of NARWs and report upon survey activity information. NMFS believes that these requirements address the commenter's concerns.

Comment 16: Oceana recommended that when HRG surveys are allowed to resume after a shutdown event, the surveys should be required to use a ramp-up procedure to encourage any nearby marine life to leave the area.

NMFS' response: NMFS agrees with this recommendation and included in the **Federal Register** notice of the proposed IHA (87 FR 4200, January 27, 2022) and this final IHA a stipulation that when technically feasible, survey equipment must be ramped up at the start or restart of survey activities. Ramp-up must begin with the power of the

smallest acoustic equipment at its lowest practical power output appropriate for the survey. When technically feasible the power must then be gradually turned up and other acoustic sources added in a way such that the source level would increase gradually. NMFS notes that ramp-up would not be required for short periods where acoustic sources were shut down (*i.e.*, less than 30 minutes) if PSOs have maintained constant visual observation and no detections of marine mammals occurred within the applicable Exclusion Zones.

Comment 17: COA and LBI assert that Level A harassment may occur, and that this was not accounted for in the proposed Notice.

NMFS' response: NMFS acknowledges the concerns brought up by the commenters regarding the potential for Level A harassment of marine mammals. However, no Level A harassment is expected to result, even in the absence of mitigation, given the characteristics of the sources planned for use. This is additionally supported by the required mitigation and very small estimated Level A harassment zones described in Atlantic Shores' 2020 **Federal Register** notice (85 FR 21198, April 16, 2020) and carried through to the 2021 renewal IHA (86 FR 21289, April 22, 2021). Furthermore, the commenters do not provide any support for the apparent contention that Level A harassment is a potential outcome of these activities. As discussed in the notice of proposed IHA, NMFS considers this category of survey operations to be near *de minimis*, with the potential for Level A harassment for any species to be discountable.

Comment 18: COA is concerned that habitat displacement could significantly increase the risk of ship-strike to NARWs from outside the survey area.

NMFS' response: NMFS does not anticipate that NARWs would be displaced from the area where Atlantic Shores' marine site characterization surveys would occur,

and COA does not provide evidence that this effect should be a reasonably anticipated outcome of the specified activity. Similarly, NMFS is not aware of any scientific information suggesting that the survey activity would drive marine mammals into shipping lanes, and disagrees that this would be a reasonably anticipated effect of the specified activities. The take by Level B harassment authorized by NMFS is precautionary but considered unlikely, as NMFS' take estimation process does not account for the use of extremely precautionary mitigation measures, *e.g.*, the requirement for Atlantic Shores to implement a Shutdown Zone that is more than 3 times as large as the estimated harassment zone. These requirements are expected to largely eliminate the actual occurrence of Level B harassment events and, to the extent that harassment does occur, would minimize the duration and severity of any such events. Therefore, even if a NARW was in the area of the cable corridor surveys, a displacement impact is not anticipated.

Although the primary stressor to marine mammals from the specified activities is acoustic exposure to the sound source, NMFS takes seriously the risk of vessel strike and has prescribed measures sufficient to avoid the potential for ship strike to the extent practicable. NMFS has required these measures despite a very low likelihood of vessel strike; vessels associated with the survey activity will add a discountable amount of vessel traffic to the specific geographic region and, furthermore, vessels towing survey gear travel at very slow speeds (*i.e.*, roughly 4-5 kn).

Comment 19: COA is concerned regarding the number of species that could be impacted by the activities, as well as a lack of baseline data being available for species in the area. In addition, COA has stated that NMFS did not adequately address the potential for cumulative impacts to bottlenose dolphins from Level B harassment over several years of project activities.

NMFS' response: We appreciate the concern expressed by COA. NMFS utilizes the best available science when analyzing which species may be impacted by an applicant's proposed activities. Based on information found in the scientific literature, as well as based on density models developed by Duke University, all marine mammal species included in the proposed **Federal Register** Notice have some likelihood of occurring in Atlantic Shores' survey areas. Furthermore, the MMPA requires us to evaluate the effects of the specified activities in consideration of the best scientific evidence available and, if the necessary findings are made, to issue the requested take authorization. The MMPA does not allow us to delay decision making in hopes that additional information may become available in the future. Furthermore, NMFS notes that it has previously addressed discussions on cumulative impact analyses in previous comments and references COA back to these specific responses in this Notice.

Regarding the lack of baseline information cited by COA, with specific concern pointed out for harbor seals, NMFS points towards two sources of information for marine mammal baseline information: the Ocean/Wind Power Ecological Baseline Studies, January 2008 - December 2009 completed by the New Jersey Department of Environmental Protection in July 2010 (<https://dspace.njstatelib.org/xmlui/handle/10929/68435>) and the Atlantic Marine Assessment Program for Protected Species (AMAPPS; <https://www.fisheries.noaa.gov/new-england-mid-atlantic/population-assessments/atlantic-marine-assessment-program-protected>) with annual reports available from 2010 to 2020 (<https://www.fisheries.noaa.gov/resource/publication-database/atlantic-marine-assessment-program-protected-species>) that cover the areas across the Atlantic Ocean. NMFS has duly considered this and all available information.

Based on the information presented, NMFS has determined that no new information has become available, nor do the commenters present additional information, that would change our determinations since the publication of the proposed notice.

Comment 20: COA and LBI indicated that they believe the survey area to be too large for the described proposed surveys as the geographical scope of the survey does not seem to match up with the stated site characterization survey area. Commenters justify this by saying that the export cable routes were not previously described in the Bureau of Ocean Energy Management's (BOEM) Construction and Operations Plans (COP) and Notice of Intent (NOI) and therefore cannot be included in the scope of activities requested by Atlantic Shores.

NMFS' response: It is not in NMFS' jurisdiction to dictate how and where an applicant's activities should be performed. Under the MMPA, NMFS must analyze and make findings, if possible, based on the specified activity as described by the applicant. Any comments by stakeholders regarding the geographical scope and size of survey activities, or what information is or is not included in BOEM's COP and NOI (*i.e.*, inclusion of the export cable routes) are out of scope for the described proposed action as BOEM, not NMFS, is in charge of leasing and activities occurring within a defined area and region.

Comment 21: LBI states its opposition to the use of a categorical exclusion under NEPA, asserting that, at minimum, an Environmental Assessment is the appropriate level of review.

NMFS' response: NMFS does not agree with LBI's comment. A categorical exclusion (CE) is a category of actions that an agency has determined does not individually or cumulatively have a significant effect on the quality of the human

environment, and is appropriately applied for such categories of actions so long as there are no extraordinary circumstances present that would indicate that the effects of the action may be significant. Extraordinary circumstances are situations for which NOAA has determined further NEPA analysis is required because they are circumstances in which a normally excluded action may have significant effects. A determination of whether an action that is normally excluded requires additional evaluation because of extraordinary circumstances focuses on the action's potential effects and considers the significance of those effects in terms of both context (consideration of the affected region, interests, and resources) and intensity (severity of impacts). Potential extraordinary circumstances relevant to this action include (1) adverse effects on species or habitats protected by the MMPA that are not negligible; (2) highly controversial environmental effects; (3) environmental effects that are uncertain, unique, or unknown; and (4) the potential for significant cumulative impacts when the proposed action is combined with other past, present, and reasonably foreseeable future actions.

The relevant NOAA CE associated with issuance of incidental take authorizations is CE B4, "Issuance of incidental harassment authorizations under section 101(a)(5)(A) and (D) of the MMPA for the incidental, but not intentional, take by harassment of marine mammals during specified activities and for which no serious injury or mortality is anticipated." This action falls within CE B4. In determining whether a CE is appropriate for a given incidental take authorization, NMFS considers the applicant's specified activity and the potential extent and magnitude of takes of marine mammals associated with that activity along with the extraordinary circumstances listed in the Companion Manual for NAO 216-6A and summarized above. The evaluation of whether extraordinary circumstances (if present) have the potential for significant environmental effects is limited to the decision NMFS is responsible for, which is issuance of the incidental take authorization. While there may be environmental effects associated with

the underlying action, potential effects of NMFS' action are limited to those that would occur due to the authorization of incidental take of marine mammals. NMFS prepared numerous Environmental Assessments (EAs) analyzing the environmental impacts of the categories of activities encompassed by CE B4 which resulted in Findings of No Significant Impacts (FONSI) and, in particular, numerous EAs prepared in support of issuance of IHAs related to similar survey actions are part of NMFS' administrative record supporting CE B4. These EAs demonstrate the issuance of a given incidental harassment authorization does not affect other aspects of the human environment because the action only affects the marine mammals that are the subject of the incidental harassment authorization. These EAs also addressed factors in 40 CFR 1508.27 regarding the potential for significant impacts and demonstrate the issuance of incidental harassment authorization for the categories of activities encompassed by CE B4 do not individually or cumulatively have a significant effect on the human environment.

Specifically for this action, NMFS independently evaluated the use of the CE for issuance of Atlantic Shores' IHA, which included consideration of extraordinary circumstances. As part of that analysis, NMFS considered including whether this IHA issuance would result in cumulative impacts that could be significant. In particular, the issuance of an IHA to Atlantic Shores is expected to result in minor, short-term behavioral effects on marine mammal species due to exposure to underwater sound from site characterization survey activities. Behavioral disturbance is expected to occur intermittently in the vicinity of Atlantic Shores' survey area during the one-year timeframe. Level B harassment will be reduced through use of mitigation measures described herein. Additionally, as discussed elsewhere, NMFS has determined that Atlantic Shores' activities fall within the scope of activities analyzed in GARFO's programmatic consultation regarding geophysical surveys along the U.S. Atlantic coast in the three Atlantic Renewable Energy Regions (completed June 29, 2021; revised

September 2021), which concluded surveys such as those planned by Atlantic Shores are not likely to adversely affect endangered listed species or adversely modify or destroy critical habitat. Accordingly, NMFS has determined that the issuance of this IHA ~~will~~~~will not~~ result in no more than ~~non~~-negligible (as that term is defined by the Companion Manual for NAO 216-6A) adverse effects on species protected by the ESA and the MMPA.

Further, the issuance of this IHA will not result in highly controversial environmental effects or result in environmental effects that are uncertain, unique, or unknown because numerous entities have been engaged in site characterization surveys that result in Level B harassment of marine mammals in the United States. This type of activity is well documented; prior authorizations and analysis demonstrates issuance of an IHA for this type of action only affects the marine mammals that are the subject of the specific authorization and, thus, no potential for significant cumulative impacts are expected, regardless of past, present, or reasonably foreseeable actions, even though the impacts of the action may not be significant by itself. Based on this evaluation, we concluded that the issuance of the IHA qualifies to be categorically excluded from further NEPA review.

Comment 22: LBI asserts that the notice of proposed IHA does not address compliance with the ESA, and states their assumption that NMFS relies on the 2013 Biological Assessment (BA) and Biological Opinion (BO), which can be found at <https://repository.library.noaa.gov/view/noaa/29291>. LBI goes on to find fault with the analysis conducted in support of the 2013 Opinion and states that NMFS cannot rely on the analysis for the necessary ESA compliance.

NMFS' response: LBI is incorrect. NMFS did not utilize the 2013 BA and BO for Atlantic Shores' 2022 site characterization surveys. As described in the notice of

proposed IHA (87 FR 4217, 4225), NMFS determined that its proposed action of issuing an IHA in relation to the activities described in the application fell within the scope of the Programmatic Consultation regarding geophysical surveys along the U.S. Atlantic coast in the three Atlantic Renewable Energy Regions, developed by the NMFS Greater Atlantic Regional Office (GARFO) in 2021. Furthermore, the Programmatic Consultation covered the region that Atlantic Shores' survey will occur in and also covered the equipment Atlantic Shores anticipates using during their surveys. The Programmatic Consultation further prescribed marine mammal-relevant specific Project Design Criteria (PDCs). Pursuant to section 7 of the ESA, NMFS has required compliance with these PDCs in the final IHA. This information can be found in both the proposed **Federal Register** Notice and the final Notice. More information can be found on GARFO's website (<https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-take-reporting-programmatics-greater-atlantic#offshore-wind-site-assessment-and-site-characterization-activities-programmatic-consultation>) as well as on the NMFS' website for Atlantic Shores' specific action (<https://www.fisheries.noaa.gov/action/incidental-take-authorization-atlantic-shores-offshore-wind-llc-marine-site-0>).

Comment 23: LBI asserts that NMFS has not been sufficiently clear with regard to its use of density data, and expresses concern that the density data used may not be sufficiently conservative.

NMFS' response: As discussed in greater detail in the notice of proposed IHA, NMFS relied upon the best available scientific information in assessing the likelihood of occurrence for all potentially impacted marine mammal species, including the NARW. Habitat-based density models produced by the Duke University Marine Geospatial Ecology Laboratory (Roberts *et al.*, 2016b, 2017, 2018, 2021) represent the best available

information regarding marine mammal densities in the survey area. Density data for all taxa are available for 10 km x 10 km grid cells over the entire survey area and, for most species (including NARW), are available for each of 12 months. For the exposure analysis, these density data were mapped using a geographic information system (GIS) for each of the survey areas (*i.e.*, Lease Area, ECR North, ECR South). Densities of each species were then averaged by season; thus, a density was calculated for each species for spring, summer, fall and winter. To be conservative, the greatest seasonal density calculated for each species was then carried forward in the exposure analysis. All density information used by NMFS is publicly available through Duke University's OBIS-SEAMAP website: <https://seamap.env.duke.edu/models/Duke/EC/>.

We note that LBI does not discuss what it means by stating that the analysis may not be “conservative,” and does not connect this concern to the relevant requirements of the MMPA. However, NMFS believes that its approach to use of the density information, which was described in full in the notice of proposed IHA, addresses any such concerns.

Comment 24: LBI asserts that NMFS' assessment of the potential for, and the impacts of, masking (in particular for the NARW) is insufficient.

NMFS' response: NMFS disagrees that the potential impacts of masking were not properly considered. NMFS acknowledges our understanding of the scientific literature that LBI cited but, fundamentally, the masking effects to any one individual whale from one survey are expected to be minimal. Masking is referred to as a chronic effect because one of the key harmful components of masking is its duration—the fact that an animal would have reduced ability to hear or interpret critical cues becomes much more likely to cause a problem the longer it is occurring. Also, inherent in the concept of masking is the fact that the potential for the effect is only present during the times that the animal and the source are in close enough proximity for the effect to occur (and further this time

period would need to coincide with a time that the animal was utilizing sounds at the masked frequency) and, as our analysis (both quantitative and qualitative components) indicates, because of the relative movement of whales and vessels, we do not expect these exposures with the potential for masking to be of a long duration within a given day. Further, because of the relatively low density of mysticetes, and relatively large area over which the vessels travel, we do not expect any individual whales to be exposed to potentially masking levels from these surveys for more than a few days in a year.

As noted above, any masking effects of this survey are expected to be limited and brief, if present. Given the likelihood of significantly reduced received levels beyond even short distances from the survey vessel, combined with the short duration of potential masking and the lower likelihood of extensive additional contributors to background noise offshore and within these short exposure periods, we believe that the incremental addition of the survey vessel is unlikely to result in more than minor and short-term masking effects, likely occurring to some small number of the same individuals captured in the estimate of behavioral harassment.

Comment 25: LBI requests that NMFS explain why a 20 dB propagation loss coefficient was applicable to the analysis presented in the proposed Notice or to go back and rerun the analysis using a 15 dB propagation loss coefficient.

NMFS' response: LBI states that NMFS' assumption that use of a $20\log R$ transmission loss factor (*i.e.*, spherical spreading) is inappropriate, and states that "According to a number of scientific sources, the use of a noise propagation loss coefficient of 20 dB per tenfold increase in distance represents "spherical spreading" and is only appropriate in the "near field" where the calculated horizontal distance is comparable with the water depth." However, LBI does not cite any such scientific sources, so NMFS must evaluate LBI's recommendations based only on its comment.

A major component of transmission loss is spreading loss and, from a point source in a uniform medium, sound spreads outward as spherical waves (“spherical spreading”) (Richardson *et al.*, 1995). In water, these conditions are often thought of as being related to deep water, where more homogenous conditions may be likely. However, the theoretical distinction between deep and shallow water is related more to the wavelength of the sound relative to the water depth, versus to water depth itself. Therefore, when the sound produced is in the kilohertz range, where wavelength is relatively short, much of the continental shelf may be considered “deep” for purposes of evaluating likely propagation conditions.

As described in the notice of proposed IHA, the area of water ensonified at or above the root mean square (RMS) 160 dB threshold was calculated using a simple model of sound propagation loss, which accounts for the loss of sound energy over increasing range. Our use of the spherical spreading model (where propagation loss = $20 * \log [\text{range}]$; such that there would be a 6-dB reduction in sound level for each doubling of distance from the source) is a reasonable approximation over the relatively short ranges involved. Even in conditions where cylindrical spreading (where propagation loss = $10 * \log [\text{range}]$; such that there would be a 3-dB reduction in sound level for each doubling of distance from the source) may be appropriate (*e.g.*, non-homogenous conditions where sound may be trapped between the surface and bottom), this effect does not begin at the source. In any case, spreading is usually more or less spherical from the source out to some distance, and then may transition to cylindrical (Richardson *et al.*, 1995). For these types of surveys, NMFS has determined that spherical spreading is a reasonable assumption even in relatively shallow waters (in an absolute sense) as the reflected energy from the seafloor will be much weaker than the direct source and the volume influenced by the reflected acoustic energy would be much smaller over the relatively short ranges involved.

In support of its position, LBI cites several examples of use of practical spreading (a useful real-world approximation of conditions that may exist between the theoretical spreading modes of spherical and cylindrical; $15\log R$) in asserting that this approach is also appropriate here. However, these examples (U.S. Navy construction at Newport, RI, and NOAA construction in Ketchikan, AK) are not relevant to the activity at hand. First, these actions occur in even shallower water (*e.g.*, less than 10 m for Navy construction). Of greater relevance to the action here, pile driving activity produces sound with longer wavelengths than the sound produced by the acoustic sources planned for use here. As noted above, a determination of appropriate spreading loss is related to the ratio of wavelength to water depth more than to a strict reading of water depth. NMFS indeed uses practical spreading in typical coastal construction applications, but for reasons described here, uses spherical spreading when evaluating the effects of HRG surveys on the continental shelf.

In addition, this analysis is likely conservative for other reasons, *e.g.*, the lowest frequency was used for systems that are operated over a range of frequencies and other sources of propagation loss are neglected.

NMFS has determined that spherical spreading is the most appropriate form of propagation loss for these surveys and has relied on this approach for past IHAs with similar equipment, locations, and depths. Please refer back to the Garden State HRG IHA (83 FR 14417; April 4, 2018) and the 2019 Skipjack HRG IHA (84 FR 51118; September 27, 2019) for examples. Prior to the issuance of these IHAs (approximately 2018 and older), NMFS typically relied upon practical spreading for these types of survey activities. However, as additional scientific evidence became available, including numerous sound source verification reports, NMFS determined that this approach was inappropriately conservative and, since that time, as consistently used spherical

spreading. Furthermore, NMFS' User Spreadsheet tool assumes a "safe distance" methodology for mobile sources where propagation loss is spherical spreading (20LogR) (https://media.fisheries.noaa.gov/2020-12/User_Manual%20_DEC_2020_508.pdf?null), and NMFS calculator tool for estimating isopleths to Level B harassment thresholds also incorporates the use of spherical spreading.

Comment 26: LBI suggests that NMFS utilize a source level of 211 dB instead of the 203 dB for the Dura-Spark 240, as was cited in the proposed **Federal Register** Notice. NMFS notes that as LBI did not provide the metric for the source levels that they refer to in their letter, NMFS will use the one that was referenced in the proposed **Federal Register** Notice.

NMFS' response: NMFS disagrees with LBI's recommendation, and has determined that the 203 dB source level is the most appropriate for use herein. As discussed in the notice of proposed IHA, the Applied Acoustics Dura-Spark was included and measured in Crocker and Fratantonio (2016), but not with an energy setting near 800 J, the energy setting which was determined as the "worst-case scenario" by Atlantic Shores for use in the presence of denser substrates. The SIG ELC 820 sparker was deemed as a similar alternative to the Dura-Spark based on information in Table 9 of Crocker and Fratantonio (2016), and where higher energy setting of 750 J (at a 5 m depth) had been measured. We also note that using the SIG ELC as a surrogate system has been previously documented and employed in other issued IHAs, such as the Mayflower Wind HRG surveys (86 FR 38033, July 19, 2021). NMFS further based this decision on further information on the SIG acoustic source, Crocker and Fratantonio (2016), and other IHA applications (see Mayflower Wind's application at https://media.fisheries.noaa.gov/2021-02/Mayflower-2021HA_Appl_OPR1.pdf?null). The frequency ranges provided for the SIG ELC represent a broad range (0.01 – 1.9

kHz), which includes the highest bandwidth at the 750 J reported in Crocker and Fratantonio (2016).

We also note that, based on additional discussion with Atlantic Shores, a power level of 750 J was likely an overestimate and that 500-600 J was more likely to be used during the HRG surveys and that 750 was a conservative overestimate. NMFS included this information in the proposed **Federal Register** Notice under Table 2. The use of information that appropriately addresses the potential for use at the higher power level means that the analysis herein, including the selection of source level, is conservative for most typical applications of the acoustic sources.

Comment 27: LBI asserts that NMFS has not appropriately considered the location of NARW migratory habitat in relation to the survey and, in so doing, has not correctly evaluated the potential for impacts to NARW migratory habitat.

NMFS' response: NMFS disagrees in LBI's assertion regarding NARW migratory habitat. As we previously stated above in response to Comment #2, the migratory habitat of the NARW is very large in comparison to the overall size of Atlantic Shores' survey area but also, importantly, we do not expect any meaningful or significant impacts to important behavior that may occur within the portion of this habitat that may be impacted by the specified activity. Because of this, we expect that any potential exposures NARWs may experience when transiting the migratory corridor would not result in more than behavioral harassment to a minor degree. As is necessary for authorizations issued under the MMPA, we have fully evaluated any potential impacts to both the important behaviors of marine mammals (including NARWs) and to their important habitats to make our negligible impact determination.

Comment 28: LBI suggests that NMFS should use more conservative information related to the acoustic output of the sources planned for use (*i.e.*, a higher source level and a lower transmission loss coefficient), and performed its own analysis of these alternative scenarios. LBI notes that these changes would increase the size of the estimated Level B harassment zone and, as a result, increase the expected take numbers. LBI also recommends, as a result of their analysis, that the Exclusion Zone be increased to 2,500 m.

NMFS' response: NMFS disagrees that the changes suggested by LBI are appropriate. We have addressed use of the alternate source level and the recommendation of lower assumed propagation loss in previous responses to comments herein. While NMFS acknowledges that, if one assumes the most conservative values at every opportunity, the analysis will produce higher estimates of harassment zone size and of incidental take. However, the assumptions made by LBI are not realistic, and LBI does not adequately justify the assumptions made in its overly conservative analysis.

Comment 29: LBI asserts that the potential for Level A harassment, serious injury and/or death impacts have been insufficiently addressed in NMFS' analysis. LBI also suggests that NMFS must perform a "cumulative PTS analysis".

NMFS' response: The commenter appears to mistakenly reference NMFS' historical Level A harassment threshold of 180 dB rms SPL received level in addressing this issue. However, in 2018, NMFS published Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing, which updated the 180 dB SPL Level A harassment threshold. Since that time, NMFS has been applying dual threshold criteria based on both peak pressure and cumulative sound exposure level thresholds. This dual criteria approach requires that the more conservative of the two hearing group-specific threshold criteria be applied in evaluating the potential for Level

A harassment. Therefore, NMFS has considered the potential for Level A harassment on the basis of cumulative sound exposure level (as well as peak pressure) in the way suggested by LBI.

As described in the Estimated Take section, NMFS has established a PTS (Level A harassment) threshold of 183 dB cumulative SEL for low frequency specialists. In support of a previous IHA request (see the proposed 2020 Notice (85 FR 7926; February 12, 2020) and the final 2020 Notice (85 FR 21198, April 16, 2020)), Atlantic Shores provided estimated Level A harassment zones for similar equipment (*i.e.*, the Applied Acoustics Dura-Spark 240 sparker). Despite assuming a higher source level than is used herein, the result of this analysis shows that a NARW would have to come within 1 m of the sparker to potentially incur PTS. NMFS has reviewed the analysis found in Atlantic Shores' 2020 HRG IHA application and confirmed that it is accurate and relevant to this action. This application can be found on NMFS' website at https://media.fisheries.noaa.gov/dam-migration/atlanticshores_2020_app_opr1.pdf.

Not only are NARWs migrating through the area, meaning that their occurrence in the area is expected to be of relatively brief duration and the likelihood of exposures of longer duration or at closer range minimized, Atlantic Shores is also required to not approach any NARW within 500 m or operate the sparker within 500 m of a NARW (see 87 FR 4217 of the proposed Notice). As such, there is essentially no potential for a NARW to experience PTS (*i.e.*, Level A harassment) from the described surveys.

Comment 30: LBI insists that NMFS do an in-depth analysis of any potential serious injury and/or death to NARWs that could occur during Atlantic Shores' surveys. They further state that any serious injury or mortality could occur directly from the NARW's migration being impacted by cumulative sound exposure leading to PTS, any adverse reactions from behavioral disruption, and masking.

NMFS' response: The best available science indicates that Level B harassment, or disruption of behavioral patterns, may occur. No mortality or serious injury is expected to occur as a result of the planned surveys, and there is no scientific evidence indicating that any marine mammal could experience these as a direct result of noise from geophysical survey activity. Authorization of mortality and serious injury may not occur via IHAs, only within Incidental Take Regulations (ITRs), and such authorization was neither requested nor proposed. NMFS notes that in its history of authorizing take of marine mammals, there has never been a report of any serious injuries or fatalities of a marine mammal related to the site characterization surveys, including for NARWs. We emphasize that an estimate of take numbers alone is not sufficient to assess impacts to a marine mammal population. Take numbers must be viewed contextually with other factors, as explained in the “Negligible Impact Analyses and Determinations” section of this Notice.

Comment 31: LBI states that to properly make a negligible impact determination, NMFS should develop/provide criteria to avoid jeopardizing the existence and survival of the NARW. LBI states that this would ideally include no instances of fatality or serious injury from survey noise and meet that strict criterion with high statistical confidence. LBI notes that they believe the current proposed Notice for Atlantic Shores’ surveys does not meet this criteria.

NMFS' response: LBI’s comment is founded on the presumption, absent evidence, that serious injury or mortality is a reasonably anticipated outcome of Atlantic Shores’ specified activity. NMFS emphasizes that there is no credible scientific evidence available suggesting that mortality and/or serious injury is a potential outcome of the planned survey activity, and LBI provides no information to the contrary. We also refer LBI to the GARFO 2021 Programmatic Consultation, which finds that these survey

activities are in general not likely to adversely affect ESA-listed marine mammal species, *i.e.*, GARFO's analysis conducted pursuant to the ESA finds that marine mammals are not likely to be taken at all (as that term is defined under the ESA), much less be taken by serious injury or mortality. That document is found here:

<https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-take-reporting-programmatics-greater-atlantic#offshore-wind-site-assessment-and-site-characterization-activities-programmatic-consultation>.

Comment 32: LBI states that it believes NMFS' negligible impact finding for NARWs to be insufficient given the analysis LBI included in their letter, which produced higher take numbers for marine mammals, including NARWs. LBI also states that, based on their assertion that serious injury and/or mortality is a potential outcome of the specified activity for NARWs, a Rulemaking (Incidental Take Regulation with subsequent Letters of Authorization) would be necessary to undertake Atlantic Shores' site characterization surveys due to LBI's premise that take by serious injury and/or mortality may occur.

NMFS' response: NMFS acknowledges that authorization under section 101(a)(5)(A) of the MMPA would be required were mortality or serious injury an expected outcome of the action. However, as noted previously, there is no scientific evidence suggesting that such outcomes are possible and, therefore, an IHA issued under section 101(a)(5)(D) is appropriate. Similarly, if the analysis presented by LBI were considered credible, the results would necessitate a revision to NMFS' negligible impact determination. However, as detailed in previous comment responses, the LBI analysis is not based on the best scientific evidence available, and NMFS does not consider it to be a credible analysis. Separately, it appears that LBI equates Level A harassment with serious injury and mortality in suggesting that Incidental Take Regulations are required. As

discussed herein, Level A harassment is not an expected outcome of the specified activity. However, we clarify that section 101(a)(5)(D) of the MMPA, which governs the issuance of IHAs, indicates that the “the Secretary shall authorize....taking by harassment [...]” The definition of “harassment” in the MMPA clearly includes both Level A and Level B harassment.

LBI further suggested that NMFS should promulgate programmatic Incidental Take Regulations for site characterization activities. Although NMFS is open to this approach, we have not received a request for such regulations and NMFS reminds LBI that the MMPA only allows for the development of Incidental Take Regulations upon request. LBI states that this would be necessary based on the potential for serious injury or mortality that was assumed in LBI’s letter. However, as discussed previously, NMFS does not expect any serious injury or mortality, even absent mitigation efforts, because of the nature of the activities described in the proposed **Federal Register** Notice.

Furthermore, NMFS included a vessel strike analysis in the proposed Notice under the **Potential Effects of Specified Activities on Marine Mammals and Their Habitat** section. We identified that at average transit speed for geophysical survey vessels, the probability of serious injury or mortality resulting from a strike is low enough to be discountable. However, the likelihood of a strike actually happening is again low given the smaller size of these vessels and generally slower speeds during transit. Further, Atlantic Shores is required to implement monitoring and mitigation measures during transit, including observing for marine mammals and maintaining defined separation distances between the vessel and any marine mammal (see the **Mitigation** and **Monitoring and Reporting** sections). Finally, despite several years of marine site characterization surveys occurring off the U.S. east coast, no vessels supporting offshore wind development have struck a marine mammal either in transit or during surveying. Because vessel strikes are not reasonably expected to occur, no such take is authorized.

The mitigation measures in the IHA related to vessel strike avoidance are not limited to vessels operating within the survey area or cable corridors and therefore apply to transiting vessels. Because of these reasons and the addition of mitigation efforts, including required vessel separation distances to further reduce any risk, we do not find that a Rulemaking is necessary for Atlantic Shores' HRG surveys.

Comment 33: LBI suggests that as a means of effecting the Least Practicable Adverse Impacts, as required under the MMPA, survey activities should be prohibited from January through April, as well as in November. Furthermore, LBI suggests that an annual Seasonal Management Area (SMA) be established in and adjacent to the survey area to mitigate against any vessel strike.

NMFS' response: NMFS assumes this is regarding the NARW and shares concern with LBI regarding the status of the NARW, given that a UME has been in effect for this species since June of 2017 and that there have been a number of recent mortalities. NMFS appreciates the value of seasonal restrictions under some circumstances. However, in this case, we have determined seasonal restrictions are not warranted. We reiterate a response from earlier where NARW occurrence in this area is generally low most of the year. Furthermore, NMFS has already stated that this area consists only of migratory habitat for the NARW, consisting of no primary foraging habitat, which would further reduce the risks of exposure and impacts. Further, NMFS is requiring Atlantic Shores to comply with restrictions associated with identified SMAs and they must comply with DMAs, if any DMAs are established near the survey area. Finally, significantly shortening Atlantic Shores work season is impracticable given the number of survey days planned for the specified activity for this IHA.

NMFS wishes to clarify that existing and permanent SMAs have been previously established under a different rulemaking (73 FR 60173 and can also be found on NMFS'

website at <https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales#speedlimit>), but that NMFS appreciates the suggestion provided by LBI and will take the comment of developing additional SMAs under consideration.

Changes from the Proposed IHA to Final IHA

Since publication of the Notice of proposed IHA, NMFS has acknowledged that the population estimate of NARWs is now under 350 animals (<https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>). However, as discussed in our response to Comment #2 above, NMFS has determined that this change in abundance estimate would not change the estimated take of NARWs or authorized take numbers, nor affect our ability to make the required findings under the MMPA for Atlantic Shores' survey activities. The status and trends of the NARW population remain unchanged.

NMFS considered all public comments received and determined that no changes to the final IHA were necessary.

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SARs; <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>) and more general information about these species (e.g., physical and behavioral descriptions) may be found on NMFS's website (<https://www.fisheries.noaa.gov/find-species>).

Table 3 lists all species or stocks for which take is authorized for this action, and summarizes information related to the population or stock, including regulatory status

under the MMPA and Endangered Species Act (ESA) and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2021). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS's SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS's draft 2021 U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessment. All values presented in Table 3 are the most recent available at the time of publication and are available in the draft 2021 SARs available online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>.

Table 3-- Marine Mammal Species Likely to Occur Near the Survey Area That May Be Affected by Atlantic Shores' Planned HRG Activities

Common Name	Scientific Name	Stock	ESA/MMPA status; strategic (Y/N) ¹	Stock abundance (CV, N _{min} , most recent abundance survey) ²	PBR	Annual M/SI ³
<i>Order Cetartiodactyla—Cetacea—Superfamily Mysticeti (baleen whales)</i>						
North Atlantic right whale	<i>Eubalaena glacialis</i>	Western Atlantic Stock	E/D, Y	368 (0; 364; 2019) ⁵	0.7	7.7

Humpback whale	<i>Megaptera novaeangliae</i>	Gulf of Maine	-/-; Y	1,396 (0; 1,380; 2016)	22	12.15
Fin whale	<i>Balaenoptera physalus</i>	Western North Atlantic Stock	E/D, Y	6,802 (0.24; 5,573; 2016)	11	1.8
Sei whale	<i>Balaenoptera borealis</i>	Nova Scotia Stock	E/D, Y	6,292 (1.02; 3,098; 2016)	6.2	0.8
Minke whale	<i>Balaenoptera acutorostrata</i>	Canadian East Coastal Stock	-/-, N	21,968 (0.31; 17,002; 2016)	170	10.6
<i>Superfamily Odontoceti (toothed whales, dolphins, and porpoises)</i>						
Sperm whale	<i>Physeter macrocephalus</i>	North Atlantic Stock	E/D, Y	4,349 (0.28; 3,451; 2016)	3.9	0
Long-finned pilot whale	<i>Globicephala melas</i>	Western North Atlantic Stock	-/-, N	39,215 (0.3; 30,627; 2016)	306	29
Atlantic white-sided dolphin	<i>Lagenorhynchus acutus</i>	Western North Atlantic Stock	-/-, N	93,233 (0.71; 54,443; 2016)	544	227
Bottlenose dolphin	<i>Tursiops truncatus</i>	Western North Atlantic Northern Migratory Coastal Stock	-/D, Y	6,639 (0.41; 4,759; 2016)	48	12.2 - 21.5
		Western North Atlantic Offshore Stock	-/-, N	62,851 (0.23; 51,914; 2016)	519	28
Common dolphin	<i>Delphinus delphis</i>	Western North Atlantic Stock	-/-, N	172,974 (0.21, 145,216, 2016)	1,452	390
Atlantic spotted dolphin	<i>Stenella frontalis</i>	Western North Atlantic Stock	-/-, N	39,921 (0.27; 32,032; 2016)	320	0
Risso's dolphin	<i>Grampus griseus</i>	Western North	-/-, N	35,215 (0.19;	301	34

		Atlantic Stock		30,051; 2016)		
Harbor porpoise	<i>Phocoena phocoena</i>	Gulf of Maine/Bay of Fundy Stock	-/-, N	95,543 (0.31; 74,034; 2016)	851	164
<i>Order Carnivora—Superfamily Pinnipedia</i>						
Harbor seal	<i>Phoca vitulina</i>	Western North Atlantic Stock	-/-, N	61,336 (0.08; 57,637; 2018)	1,729	339
Gray seal ⁴	<i>Halichoerus grypus</i>	Western North Atlantic Stock	-/-, N	27,300 (0.22; 22,785; 2016)	1,389	4,453

¹ - ESA status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality and serious injury (M/SI) exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

² - NMFS marine mammal stock assessment reports online at: www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments. CV is the coefficient of variation; N_{min} is the minimum estimate of stock abundance. In some cases, CV is not applicable.

³ - These values, found in NMFS' SARs, represent annual levels of human-caused M/SI plus serious injury from all sources combined (e.g., commercial fisheries, ship strike).

⁴ - NMFS' stock abundance estimate (and associated PBR value) applies to U.S. population only. Total stock abundance (including animals in Canada) is approximately 451,431. The annual mortality and serious injury (M/SI) value given is for the total stock.

⁵ The draft 2022 SARs have yet to be released; however, NMFS has updated its species webpage to recognize the population estimate for NARWs is now below 350 animals (<https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>).

A detailed description of the species likely to be affected by Atlantic Shores' activities, including information regarding population trends and threats, and local occurrence, were provided in the **Federal Register** notice for the proposed IHA (87 FR 4200; January 27, 2022). Since that time, we are not aware of any changes in the status of these species and stocks or other relevant new information; therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notice for those descriptions. Please also refer to NMFS's website (<https://www.fisheries.noaa.gov/find-species>) for generalized species accounts.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.*, 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 4.

Table 4-- Marine Mammal Hearing Groups (NMFS, 2018).

Hearing Group	Generalized Hearing Range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz
High-frequency (HF) cetaceans (true porpoises, <i>Kogia</i> , river dolphins, cephalorhynchid, <i>Lagenorhynchus cruciger</i> & <i>L. australis</i>)	275 Hz to 160 kHz
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz

* Represents the generalized hearing range for the entire group as a composite (*i.e.*, all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall *et al.* 2007) and PW pinniped (approximation).

The pinniped functional hearing group was modified from Southall *et al.* (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.*, 2006; Kastelein *et al.*, 2009; Reichmuth, 2013). For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. Fifteen marine mammal species (13 cetacean and 2 pinniped (both phocid) species) have the reasonable potential to co-occur with the survey activities. Please refer back to Table 3. Of the cetacean species that may be present, five are classified as low-frequency cetaceans (*i.e.*, all mysticete species), seven are classified as mid-frequency cetaceans (*i.e.*, all delphinid species and the sperm whale), and one is classified as a high-frequency cetacean (*i.e.*, harbor porpoise).

Potential Effects of Specified Activities on Marine Mammals and their Habitat

The effects of underwater noise from the deployed acoustic sources have the potential to result in behavioral harassment of marine mammals in the vicinity of the study area. The **Federal Register** notice for the proposed IHA (87 FR 4200; January 27, 2022) included a discussion of the effects of anthropogenic noise, ship strike, stress, and potential impacts on marine mammals and their habitat, therefore that information is not

repeated here; please refer to the **Federal Register** notice (87 FR 4200; January 27, 2022) for that information.

Estimated Take

This section provides the number of incidental takes authorized through this IHA, which will inform both NMFS' consideration of "small numbers" and the negligible impact determination.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment" as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes will be by Level B harassment only, in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to noise from certain HRG acoustic sources. Based primarily on the characteristics of the signals produced by the acoustic sources planned for use and the required mitigation measures, Level A harassment is neither anticipated nor will be authorized. Take by Level A harassment (injury) is considered unlikely, even absent mitigation, based on the characteristics of the signals produced by the acoustic sources planned for use, and will not be authorized. Implementation of required mitigation further reduces this potential. Furthermore and as previously described, no serious injury or mortality is anticipated or will be authorized for this activity. Below we describe how the take is estimated.

Generally speaking, we estimate take by considering: (1) Acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the

area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) and the number of days of activities. We note that while these basic factors can contribute to a basic calculation to provide an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.*, previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the authorized take estimate.

Acoustic Thresholds

NMFS recommends the use of acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS of some degree (equated to Level A harassment).

Level B Harassment – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.*, 2007, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals may be behaviorally harassed (*i.e.*, Level B harassment) when exposed to underwater anthropogenic noise above received levels of 160 dB re 1 μ Pa (rms) for the impulsive sources (*i.e.*, sparkers) and non-impulsive, intermittent sources (*e.g.*, CHIRPs) evaluated here for Atlantic Shores' survey activities.

Level A harassment - NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (NMFS, 2018)

identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). These thresholds are provided in the table below (Table 5). The references, analysis, and methodology used in the development of the thresholds are described in NMFS (2018) Technical Guidance, which may be accessed at <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance>.

Table 5-- Thresholds Identifying the Onset of Permanent Threshold Shift

Hearing Group	PTS Onset Acoustic Thresholds* (Received Level)	
	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans	<i>Cell 1</i> $L_{pk,flat}$: 219 dB $L_{E,LF,24h}$: 183 dB	<i>Cell 2</i> $L_{E,LF,24h}$: 199 dB
Mid-Frequency (MF) Cetaceans	<i>Cell 3</i> $L_{pk,flat}$: 230 dB $L_{E,MF,24h}$: 185 dB	<i>Cell 4</i> $L_{E,MF,24h}$: 198 dB
High-Frequency (HF) Cetaceans	<i>Cell 5</i> $L_{pk,flat}$: 202 dB $L_{E,HF,24h}$: 155 dB	<i>Cell 6</i> $L_{E,HF,24h}$: 173 dB
Phocid Pinnipeds (PW) (Underwater)	<i>Cell 7</i> $L_{pk,flat}$: 218 dB $L_{E,PW,24h}$: 185 dB	<i>Cell 8</i> $L_{E,PW,24h}$: 201 dB
Otariid Pinnipeds (OW) (Underwater)	<i>Cell 9</i> $L_{pk,flat}$: 232 dB $L_{E,OW,24h}$: 203 dB	<i>Cell 10</i> $L_{E,OW,24h}$: 219 dB

* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.

Note: Peak sound pressure (L_{pk}) has a reference value of 1 μ Pa, and cumulative sound exposure level (L_E) has a reference value of 1 μ Pa²s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI, 2013). However, ANSI defines peak sound pressure as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript “flat” is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (*i.e.*, varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.

Similar to the past IHAs issued to Atlantic Shores and published in the **Federal Register** (see the 2020 notice (85 FR 7926; February 12, 2020)), the planned activities for 2022 include the use of impulsive (*i.e.*, sparkers) and non-impulsive (*e.g.*, CHIRPs) sources. Carrying through the same logic as the locations, species, survey durations, equipment used, and source levels are all of a similar scope previously analyzed for Atlantic Shores' surveys, and as discussed previously, NMFS has concluded that Level A harassment is not a reasonably likely outcome for marine mammals exposed to noise through use of the sources planned for use here due to the mitigation measures Atlantic Shores will implement, and the potential for Level A harassment is not evaluated further in this document. Atlantic Shores did not request authorization of take by Level A harassment, and no take by Level A harassment will be authorized by NMFS.

Ensonified Area

Here, we describe operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds, which include source levels and transmission loss coefficient.

NMFS has developed a user-friendly methodology for estimating the extent of the Level B harassment isopleths associated with relevant HRG survey equipment (NMFS, 2020). This methodology incorporates frequency and directionality to refine estimated ensonified zones. For acoustic sources that operate with different beamwidths, the maximum beamwidth was used, and the lowest frequency of the source was used when calculating the frequency-dependent absorption coefficient (see Table 6).

NMFS considers the data provided by Crocker and Fratantonio (2016) to represent the best available information on source levels associated with HRG survey equipment and, therefore, recommends that source levels provided by Crocker and Fratantonio (2016) be incorporated in the method described above to estimate isopleth distances to harassment thresholds. In cases when the source level for a specific type of

HRG equipment is not provided in Crocker and Fratantonio (2016), NMFS recommends that either the source levels provided by the manufacturer be used, or, in instances where source levels provided by the manufacturer are unavailable or unreliable, a proxy from Crocker and Fratantonio (2016) be used instead. Table 2 shows the HRG equipment types that may be used during the planned surveys and the source levels associated with those HRG equipment types. The computations and results from the Level B ensonified area analysis are displayed in Tables 6 and 7 below.

Table 6-- Inputs Into the Level B Harassment Spreadsheet for High Resolution Geophysical Sources Using a Transmission Loss Coefficient Of 20

Source Name	Input Values in Spreadsheet					Computed Values (meters)	
	Threshold Level	Source Level (dBrms)	Frequency (kHz)	Beamwidth (degrees)	Water depth (m)	Slant distance of threshold	Horizontal Threshold Range (m)
SIG ELC 820 Sparker at 750J*	160	203	0.01	180	5	141	141
Geo Marine Survey System 2D SUHRS at 400J	160	195	0.2	180	5	56	56
Edgetech 2000-DSS	160	195	2	24	5	56	1
Edgetech 216	160	179	2	24	5	9	1
Edgetech 424	160	180	4	71	10	10	6
Edgetech 512i	160	179	0.7	80	10	9	6
Pangeosubsea Sub-Bottom Imager™	160	190	4	120	5	32	9

*Used as a proxy for the Applied Acoustics Dura-Spark 240 because the specific energy setting is not described in Crocker and Franantonio (2016).

Table 7-- Maximum Distances to Level B 160 dB_{RMS} Threshold by Equipment Type Operating Below 180 kHz

HRG Survey Equipment (Sub-Bottom Profiler)	Representative Equipment Type	Distances to Level B Threshold (m)
Sparker	Applied Acoustics Dura-Spark 240	141
	Geo Marine Survey System 2D SUHRS	56
CHIRP	Edgetech 2000-DSS	56
	Edgetech 216	9
	Edgetech 424	10
	Edgetech 512i	9
	Pangeosubsea Sub-Bottom ImagerTM	32

Results of modeling using the methodology described and shown above indicated that, of the HRG survey equipment planned for use by Atlantic Shores that has the potential to result in Level B harassment of marine mammals, the Applied Acoustics Dura-Spark 240 would produce the largest Level B harassment isopleth (141 m; please refer back to Table 7 above, as well as Table 6-1 in Atlantic Shores' IHA application). Estimated Level B harassment isopleths associated with the CHIRP equipment planned for use are also found in Table 7. All CHIRPs equipment produced Level B harassment isopleths much smaller than the Applied Acoustics Dura-Spark 240 sparker did.

Although Atlantic Shores does not expect to use sparker sources on all planned survey days and during the entire duration that surveys are likely to occur, Atlantic Shores assumed, for purposes of analysis, that the sparker would be used on all survey

days and across all hours. This is a conservative approach, as the actual sources used on individual survey days will likely produce smaller harassment distances.

Marine Mammal Occurrence

In this section, we provide the information about presence, density, or group dynamics of marine mammals that will inform the take calculations.

Habitat-based density models produced by the Duke University Marine Geospatial Ecology Laboratory and the Marine-life Data and Analysis Team, based on the best available marine mammal data from 1992-201 obtained in a collaboration between Duke University, the Northeast Regional Planning Body, the University of North Carolina Wilmington, the Virginia Aquarium and Marine Science Center, and NOAA (Roberts *et al.*, 2016a; Curtice *et al.*, 2018), represent the best available information regarding marine mammal densities in the survey area. More recently, these data have been updated with new modeling results and include density estimates for pinnipeds (Roberts *et al.*, 2016b, 2017, 2018).

The density data presented by Roberts *et al.* (2016b, 2017, 2018, 2020) incorporates aerial and shipboard line-transect survey data from NMFS and other organizations and incorporates data from eight physiographic and 16 dynamic oceanographic and biological covariates, and controls for the influence of sea state, group size, availability bias, and perception bias on the probability of making a sighting. These density models were originally developed for all cetacean taxa in the U.S. Atlantic (Roberts *et al.*, 2016a). In subsequent years, certain models have been updated based on additional data as well as certain methodological improvements. More information is available online at <https://seamap.env.duke.edu/models/Duke/EC/>. Marine mammal density estimates in the survey area (animals/km²) were obtained using the most recent model results for all taxa (Roberts *et al.*, 2016b, 2017, 2018, 2020). The updated models

incorporate additional sighting data, including sightings from NOAA's Atlantic Marine Assessment Program for Protected Species (AMAPPS) surveys.

For the exposure analysis, density data from Roberts *et al.* (2016b, 2017, 2018, 2021) were mapped using a geographic information system (GIS). For each of the survey areas (*i.e.*, Lease Area, ECR North, ECR South), the densities of each species as reported by Roberts *et al.* (2016b, 2017, 2018, 2021) were averaged by season; thus, a density was calculated for each species for spring, summer, fall and winter. To be conservative, the greatest seasonal density calculated for each species was then carried forward in the exposure analysis. Estimated seasonal densities (animals per km²) of all marine mammal species that may be taken during the planned survey activities, for all survey areas are shown in Tables C-1, C-2 and C-3 in Appendix C of Atlantic Shores' IHA application. The maximum seasonal density values used to estimate take numbers are shown in Table 8 below. Below, we discuss how densities were assumed to apply to specific species for which the Roberts *et al.* (2016b, 2017, 2018, 2021) models provide results at the genus or guild level.

Table 8-- Maximum Seasonal Marine Mammal Densities (Number of Animals per 100 km²) in the Survey Areas (Appendix C of Atlantic Shores' IHA application)

Species Groups	Species	Maximum Seasonal Densities		
		Lease Area	ECR North	ECR South
Cetaceans	North Atlantic right whale	0.499	0.182	0.179
	Humpback whale	0.076	0.082	0.103
	Fin whale	0.100	0.080	0.057
	Sei whale	0.004	0.004	0.002
	Minke whale	0.055	0.017	0.019
	Sperm whale	0.013	0.005	0.003

	Long-finned pilot whale	0.036	0.012	0.009
	Bottlenose dolphin (Western North Atlantic coastal - migratory)	---	21.675	58.524
	Bottlenose dolphin (Western North Atlantic - offshore)	21.752	21.675	58.524
	Common dolphin	3.120	1.644	1.114
	Atlantic white-sided dolphin	0.487	0.213	0.152
	Atlantic spotted dolphin	0.076	0.059	0.021
	Risso's dolphin	0.010	0.001	0.002
	Harbor porpoise	2.904	7.357	2.209
Pinnipeds	Gray seal	4.918	9.737	6.539
	Harbor seal	4.918	9.737	6.539

Note: Many of the densities provided in this table have been previously used and applied during the 2020 IHA to Atlantic Shores and its subsequent renewal and remain applicable.

For bottlenose dolphin densities, Roberts *et al.* (2016b, 2017, 2018) does not differentiate by stock. The Western North Atlantic northern migratory coastal stock is generally expected to occur only in coastal waters from the shoreline to approximately the 20 m (65 ft) isobath (Hayes *et al.*, 2018). As the Lease Area is located within depths exceeding 20 m, where the offshore stock would generally be expected to occur, all calculated bottlenose dolphin exposures within the Lease Area were assigned to the offshore stock. However, both stocks have the potential to occur in the ECR North and ECR South survey areas. To account for the potential for mixed stocks within ECR North and South, the survey areas ECR North and South were divided approximately along the 20 m depth isobath, which roughly corresponds to the 10-fathom contour on NOAA navigation charts. As approximately 33 percent of ECR North and ECR South are 20 m or less in depth, 33 percent of the estimated take calculation for bottlenose dolphins was

applied to the Western North Atlantic northern migratory coastal stock and the remaining 67 percent was applied to the offshore stock.

For these surveys, Atlantic Shores used the same pilot whale densities that were previously used in the 2020 and subsequent 2021 (renewal) IHAs. To better estimate the number of pilot whales that could potentially be impacted by the planned surveys, although exposure is noted as unlikely to occur in the IHA application, Atlantic Shores adjusted the take estimate by average group size.

Because the seasonality, feeding preferences, and habitat use by gray seals often overlaps with that of harbor seals in the survey areas, it was assumed that modeled takes of seals could occur to either of the respective species. Furthermore, as the density models produced by Roberts *et al.* (2016b, 2017, 2018) do not differentiate between the different pinniped species, the same density estimates were applied to both seal species. Because of this, pinniped density values reported in Atlantic Shores' IHA application are described as "seals" and not species-specific.

Since Atlantic Shores' 2020 and 2021 (renewal) IHAs for HRG surveys were completed, the NARW density data has been updated. This is due to the inclusion of three new datasets: 2011-2015 Northeast Large Pelagic Survey Cooperative, 2017-2018 Marine Mammal Surveys of the Wind Energy Areas conducted by the New England Aquarium, and 2017-2018 New York Bight Whale Monitoring Program surveys conducted by the New York State Department of Environmental conservation (NYSDEC). This new density data shows distribution changes that are likely influenced by oceanographic and prey covariates in the whale density model (Roberts *et al.*, 2021).

Take Calculation and Estimation

Here we describe how the information provided above is brought together to produce a quantitative take estimate.

In order to estimate the number of marine mammals predicted to be exposed to sound levels that would result in harassment, radial distances to predicted isopleths corresponding to Level B harassment thresholds are calculated, as described above. The maximum distance (*i.e.*, 141 m distance associated with the Applied Acoustics Dura-Spark 240) to the Level B harassment criterion and the estimated distance traveled per day by a given survey vessel (*i.e.*, 55 km (34.2 mi)) are then used to calculate the daily ensonified area, or zone of influence (ZOI) around the survey vessel.

Atlantic Shores estimates that surveys will achieve a maximum daily track line distance of 55 km per day (24-hour period) during the IHA effective period. This distance accounts for the vessel traveling at approximately 3.5 knots and accounts for non-active survey periods. Based on the maximum estimated distance to the Level B harassment threshold of 141 m (Table 7) and the maximum estimated daily track line distance of 55 km across all survey sites, an area of 15.57 km² would be ensonified to the Level B harassment threshold per day across all survey sites during Atlantic Shores' HRG surveys (Table 9) based on the following formula:

$$\text{Mobile Source ZOI} = (\text{Distance/day} \times 2r) + \pi r^2$$

Where: Distance/day = the maximum distance a survey vessel could travel in a 24-hour period; and r = the maximum radial distance from a given sound source to the NOAA Level A or Level B harassment thresholds.

Table 9-- Maximum HRG Survey Area Distances for Atlantic Shores' Surveys

Survey area	Number of active survey days	Survey distances per day in km (mi)	Maximum radial distance (r) in m (ft)	Calculated ZOI per day (km ²)	Total annual ensonified area (km ²)
Lease Area	120	55 (34.2)	141 (463)	15.57	1,868.4
ECR North	180				2,802.6
ECR South	60				934.2

As described above, this is a conservative estimate as it assumes the HRG source that results in the greatest isopleth distance to the Level B harassment threshold would be operated at all times during the entire survey, which may not ultimately occur.

The number of marine mammals expected to be incidentally taken per day is then calculated by estimating the number of each species predicted to occur within the daily ensonified area (animals/km²), incorporating the maximum seasonal estimated marine mammal densities as described above. Estimated numbers of each species taken per day across all survey sites are then multiplied by the total number of survey days (*i.e.*, 360). The product is then rounded, to generate an estimate of the total number of instances of harassment expected for each species over the duration of the survey. A summary of this method is illustrated in the following formula with the resulting take of marine mammals is shown below in Table 10:

$$\text{Estimated Take} = D \times ZOI \times \# \text{ of days}$$

Where: *D* = average species density (per km²); and *ZOI* = maximum daily ensonified area to relevant thresholds.

Table 10-- Numbers of Incidental Takes of Marine Mammals Authorized and Authorized Takes as a Percentage of Population

Species	Calculated Takes By Level B Harassment ^e	Takes Proposed For Level B Harassment To Be Authorized ^f	Total	
			Authorized Takes (Level B Harassment) ^g	Authorized Takes (Level B Harassment) As A Percentage Of Population/Stock ^{a, g}
North Atlantic right whale	17	17	17	4.62
Humpback whale	4	8 ^c	8	0.57
Fin whale	5	5	5	0.07
Sei whale	2	2	2	0.03
Minke whale	2	2	2	0.01
Sperm whale	1	1	1	0.03
Long-finned pilot whale	20	20	20	0.05

Bottlenose dolphin (W.N. Atlantic Coastal Migratory)	385	385	385	5.80
Bottlenose dolphin (W.N. Atlantic Offshore)	1,175	1,175	1,175	1.87
Common dolphin (short-beaked)	406	560 ^b	560	0.32
Atlantic white-sided dolphin	17	17	17	0.02
Atlantic spotted dolphin	50	100 ^d	100	0.25
Risso's dolphin	30	30	30	0.08
Harbor porpoise	282	282	282	0.30
Harbor seal	426	426	426	0.56
Gray seal	426	426	426	1.56

^a - Calculated percentages of population/stock were based on the population estimates (Nest) found in the NMFS's draft 2021 U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessment on NMFS's website (<https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports>).

^b - Based on information obtained from the monitoring report provided to NMFS after the completion of the 2020 survey, as well as information provided by Atlantic Shores (P. Phifer, personal communication, October 29, 2021), NMFS had proposed to increase the number of authorized takes (by Level B harassment only) for common dolphins.

^c - Based on recent data from King *et al.* (2021) where humpback whales were the most commonly sighted species in the New York Bight, NMFS had proposed to increase the take of humpback whales by assuming that Atlantic Shores' four modeled exposures would be of groups rather than individuals, and therefore multiplied by an average group size of two to yield eight.

^d - Based on information obtained from the monitoring report provided to NMFS after the completion of the 2020 survey, as well as information provided by Atlantic Shores (P. Phifer, personal communication, October 29, 2021), NMFS had proposed to increase the number of authorized takes (by Level B harassment only) for Atlantic spotted dolphins.

^e - These values were originally proposed by Atlantic Shores.

^f - These values were proposed by NMFS.

^g - These values have been authorized by NMFS.

The original take numbers calculated and requested by Atlantic Shores, the proposed take numbers from NMFS, and the authorized take numbers are shown in Table 10. As noted within Atlantic Shores' IHA application and discussed within the renewal IHA application (see Atlantic Shores Offshore Wind, 2021), Atlantic Shores made an

adjustment for Risso's dolphins, common dolphins, and long-finned pilot whales based on typical pod and group sizes, which yielded the values described above. NMFS agrees with this approach for these three species, as described in the IHA applications.

In the proposed notice (87 FR 4200; January 27, 2022), NMFS proposed an adjustment for three cetacean species: humpback whales, common dolphins, and Atlantic spotted dolphins. Below we describe our authorized take numbers based on these adjustments.

Estimated takes of common dolphins were increased from the density-based estimate based on information provided by Atlantic Shores (P. Phifer, personal communication, October 29, 2021) and sightings described in the 2020 monitoring report. Based on these previous observations, exposures of common dolphins above the 160-dB harassment threshold were estimated at 1.55 per day. Assuming that this same exposure rate continues for the presently planned activity yields the estimate provided in Table 10.

Based on recent information from King *et al.* (2021) that demonstrated that the humpback whale is commonly sighted along the New York Bight area, NMFS determined that the humpback whale take request may be too low given the occurrence of animals near the survey area. Because of this, NMFS proposes to double the requested take to account for underestimates to the actual occurrence of this species within the density data.

Previously, 100 takes of Atlantic spotted dolphins, by Level B harassment, were authorized to Atlantic Shores during their 2020 IHA. Based on a lack of sightings in the 2020 field season per the submitted monitoring report, Atlantic Shores had requested and been authorized half of these takes (50 Level B harassment) during their 2021 field season for their renewal IHA. However, based on information provided by Atlantic Shores (P. Phifer, personal communication, October 29, 2021) as the monitoring report for the 2021 field season is not yet available, NMFS has increased the take previously

requested by Atlantic Shores from 50 to 100 to account for the numerous sightings of Atlantic spotted dolphins that had already occurred early into Atlantic Shores’ 2021 field season (17 takes out of 50 authorized for the renewal IHA).

As described above, Roberts *et al.* (2018) produced density models for all seals and did not differentiate by seal species. The take calculation methodology as described above resulted in an estimate of 852 total seal takes for both species. Based on this estimate, Atlantic Shores has requested 852 takes total for pinnipeds (426 each species), based on the use of the same density for both species as they are known to overlap in habitat use, foraging, and spatial scale. Furthermore, as the density estimates were not split by species in Roberts *et al.* (2016b, 2017, 2018) this approach assumes that the likelihood of either species occurring during the survey is equal. We think this is a reasonable approach and therefore propose to authorize the requested amount of take, as shown in Table 10.

Worth noting is the authorized take of NARWs, which stems from an increase in the density of NARWs at the survey site. Atlantic Shores used information from Roberts *et al.* (2020) that demonstrated that the density of NARWs has increased by approximately 40 percent in some portions of the survey area compared to the 2020 IHA (see Table 11), which justifies the total take number presented above in Table 10. While past monitoring reports (see the 2020 report on NMFS’ website) have reported no observations of NARWs during the 2020 surveys, NMFS agrees with the approach taken by Atlantic Shores as using the best available science to be conservative and authorizes 17 takes by Level B harassment only of NARWs during the surveys.

Table 11 -- Changes in North Atlantic Right Whale Densities in the Survey Sites From the 2020 IHA to the 2022 IHA per data from Roberts *et al.* (2020)

	Winter	Spring	Summer	Fall
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	2020 IHA	2022 IHA	2020 IHA	2022 IHA	2020 IHA	2022 IHA	2020 IHA	2022 IHA
Lease Area	0.087	0.499	0.060	0.426	0.008	0.002	0.006	0.009
Northern ECR	0.068	0.182	0.056	0.149	0.008	0.001	0.006	0.011
Southern ECR	0.073	0.179	0.055	0.097	0.007	0.000	0.006	0.005

Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully consider two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse

impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned), and;

(2) The practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

Mitigation Measures

NMFS requires the following mitigation measures be implemented during Atlantic Shores' marine site characterization surveys. Additionally, Atlantic Shores must abide by all the marine mammal relevant conditions in the NOAA Fisheries Greater Atlantic Regional Office (GARFO) programmatic consultation (specifically Project Design Criteria (PDC) 4, 5, and 7) regarding geophysical surveys along the U.S. Atlantic coast in the three Atlantic Renewable Energy Regions (NOAA GARFO, 2021; <https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-take-reporting-programmatics-greater-atlantic#offshore-wind-site-assessment-and-site-characterization-activities-programmatic-consultation>), pursuant to Section 7 of the Endangered Species Act.

Marine Mammal Exclusion Zones and Level B Harassment Zones

Marine mammal Exclusion Zones will be established around the HRG survey equipment and monitored by PSOs. These PSOs will be NMFS-approved visual PSOs. Based upon the acoustic source in use (impulsive: sparkers; non-impulsive: non-parametric sub-bottom profilers), a minimum of one PSO must be on duty, per source vessel, during daylight hours and two PSOs must be on duty, per source vessel, during nighttime hours. These PSO will monitor Exclusion Zones based upon the radial distance

from the acoustic source rather than being based around the vessel itself. The Exclusion Zone distances are as follows:

- A 500 m Exclusion Zone for NARWs during use of specified acoustic sources (impulsive: sparkers; non-impulsive: non-parametric sub-bottom profilers).
- A 100 m Exclusion Zone for all other marine mammals (excluding NARWs) during use of specified acoustic sources (except as specified below).

All visual monitoring must begin no less than 30 minutes prior to the initiation of the specified acoustic source and must continue until 30 minutes after use of specified acoustic sources ceases.

If a marine mammal were detected approaching or entering the Exclusion Zones during the HRG survey, the vessel operator will adhere to the shutdown procedures described below to minimize noise impacts on the animals. These stated requirements will be included in the site-specific training to be provided to the survey team.

Ramp-Up of Survey Equipment and Pre-Clearance of the Exclusion Zones

When technically feasible, a ramp-up procedure will be used for HRG survey equipment capable of adjusting energy levels at the start or restart of survey activities. A ramp-up will begin with the powering up of the smallest acoustic HRG equipment at its lowest practical power output appropriate for the survey. The ramp-up procedure will be used in order to provide additional protection to marine mammals near the survey area by allowing them to vacate the area prior to the commencement of survey equipment operation at full power. When technically feasible, the power will then be gradually turned up and other acoustic sources would be added. All ramp-ups shall be scheduled so as to minimize the time spent with the source being activated.

Ramp-up activities will be delayed if a marine mammal(s) enters its respective Exclusion Zone. Ramp-up will continue if the animal has been observed exiting its respective Exclusion Zone or until an additional time period has elapsed with no further

sighting (*i.e.*, 15 minutes for small odontocetes and seals; 30 minutes for all other species).

Atlantic Shores will implement a 30 minute pre-clearance period of the Exclusion Zones prior to the initiation of ramp-up of HRG equipment. The operator must notify a designated PSO of the planned start of ramp-up where the notification time should not be less than 60 minutes prior to the planned ramp-up. This will allow the PSOs to monitor the Exclusion Zones for 30 minutes prior to the initiation of ramp-up. Prior to ramp-up beginning, Atlantic Shores must receive confirmation from the PSO that the Exclusion Zone is clear prior to proceeding. During this 30 minute pre-start clearance period, the entire applicable Exclusion Zones must be visible. The exception to this would be in situations where ramp-up may occur during periods of poor visibility (inclusive of nighttime) as long as appropriate visual monitoring has occurred with no detections of marine mammals in 30 minutes prior to the beginning of ramp-up. Acoustic source activation may only occur at night where operational planning cannot reasonably avoid such circumstances.

During this period, the Exclusion Zone will be monitored by the PSOs, using the appropriate visual technology. Ramp-up may not be initiated if any marine mammal(s) is within its respective Exclusion Zone. If a marine mammal is observed within an Exclusion Zone during the pre-clearance period, ramp-up may not begin until the animal(s) has been observed exiting its respective Exclusion Zone or until an additional time period has elapsed with no further sighting (*i.e.*, 15 minutes for small odontocetes and pinnipeds; 30 minutes for all other species). If a marine mammal enters the Exclusion Zone during ramp-up, ramp-up activities must cease and the source must be shut down. Any PSO on duty has the authority to delay the start of survey operations if a marine mammal is detected within the applicable pre-start clearance zones.

The pre-clearance zones will be:

- 500 m for all ESA-listed species (North Atlantic right, sei, fin, sperm whales); and
- 100 m for all other marine mammals.

If any marine mammal species that are listed under the ESA are observed within the clearance zones, the 30 minute clock must be paused. If the PSO confirms the animal has exited the zone and headed away from the survey vessel, the 30 minute clock that was paused may resume. The pre-clearance clock will reset to 30 minutes if the animal dives or visual contact is otherwise lost.

If the acoustic source is shut down for brief periods (*i.e.*, less than 30 minutes) for reasons other than implementation of prescribed mitigation (*e.g.*, mechanical difficulty), it may be activated again without ramp-up if PSOs have maintained constant visual observation and no detections of marine mammals have occurred within the applicable Exclusion Zone. For any longer shutdown, pre-start clearance observation and ramp-up are required.

Activation of survey equipment through ramp-up procedures may not occur when visual detection of marine mammals within the pre-clearance zone is not expected to be effective (*e.g.*, during inclement conditions such as heavy rain or fog).

The acoustic source(s) must be deactivated when not acquiring data or preparing to acquire data, except as necessary for testing. Unnecessary use of the acoustic source shall be avoided.

Shutdown Procedures

An immediate shutdown of the impulsive HRG survey equipment (Table 7) will be required if a marine mammal is sighted entering or within its respective Exclusion Zone(s). Any PSO on duty has the authority to call for a shutdown of the acoustic source if a marine mammal is detected within the applicable Exclusion Zones. Any disagreement between the PSO and vessel operator should be discussed only after shutdown has

occurred. The vessel operator would establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the HRG source(s) to ensure that shutdown commands are conveyed swiftly while allowing PSOs to maintain watch.

The shutdown requirement is waived for small delphinids (belonging to the genera of the Family *Delpinidae*: *Delphinus*, *Lagenorhynchus*, *Stenella*, or *Tursiops*) and pinnipeds if they are visually detected within the applicable Exclusion Zones. If a species for which authorization has not been granted, or, a species for which authorization has been granted but the authorized number of takes have been met, approaches or is observed within the applicable Level B harassment zone, shutdown will occur. In the event of uncertainty regarding the identification of a marine mammal species (*i.e.*, such as whether the observed marine mammal belongs to *Delphinus*, *Lagenorhynchus*, *Stenella*, or *Tursiops* for which shutdown is waived, PSOs must use their best professional judgement in making the decision to call for a shutdown.

Specifically, if a delphinid from the specified genera or a pinniped is visually detected approaching the vessel (*i.e.*, to bow ride) or towed equipment, shutdown is not required.

Upon implementation of a shutdown, the source may be reactivated after the marine mammal has been observed exiting the applicable Exclusion Zone or following a clearance period of 15 minutes for harbor porpoises and 30 minutes for all other species where there are no further detections of the marine mammal.

Shutdown, pre-start clearance, and ramp-up procedures are not required during HRG survey operations using only non-impulsive sources (*e.g.*, parametric sub-bottom profilers) other than non-parametric sub-bottom profilers (*e.g.*, CHIRPs). Pre-clearance and ramp-up, but not shutdown, are required when using non-impulsive, non-parametric sub-bottom profilers.

Seasonal Operating Requirements

As described in the proposed Notice, a section of the survey area partially overlaps with a portion of a North Atlantic right whale SMA off the port of New York/New Jersey. This SMA is active from November 1 through April 30 of each year. All survey vessels, regardless of length, would be required to adhere to vessel speed restrictions (<10 knots) when operating within the SMA during times when the SMA is active. In addition, between watch shifts, members of the monitoring team would consult NMFS' NARW reporting systems for the presence of NARWs throughout survey operations. Members of the monitoring team would also monitor the NMFS NARW reporting systems for the establishment of Dynamic Management Areas (DMA). NMFS may also establish voluntary right whale Slow Zones any time a right whale (or whales) is acoustically detected. Atlantic Shores should be aware of this possibility and remain attentive in the event a Slow Zone is established nearby or overlapping the survey area (Table 12).

Table 12-- North Atlantic Right Whale Dynamic Management Area (DMA) and Seasonal Management Area (SMA) Restrictions Within The Survey Areas

Survey area	Species	DMA restrictions	Slow zones	SMA restrictions
Lease Area	North Atlantic right whale (<i>Eubalaena glacialis</i>)	If established by NMFS, all of Atlantic Shores' vessels will abide by the described restrictions		N/A
ECR North				November 1 through July 31 (Raritan Bay)
ECR South				N/A

Note: More information on Ship Strike Reduction for the North Atlantic right whale can be found at NMFS' website: <https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales>.

There are no known marine mammal rookeries or mating or calving grounds in the survey area that would otherwise potentially warrant increased mitigation measures for marine mammals or their habitat (or both). The survey activities would occur in an area that has been identified as a biologically important area for migration for NARWs. However, given the small spatial extent of the survey area relative to the substantially

larger spatial extent of the right whale migratory area and the relatively low amount of noise generated by the survey, the survey is not expected to appreciably reduce the quality of migratory habitat nor to negatively impact the migration of NARWs, thus mitigation to address the survey's occurrence in NARW migratory habitat is not warranted.

Vessel Strike Avoidance

Vessel operators must comply with the below measures except under extraordinary circumstances when the safety of the vessel or crew is in doubt or the safety of life at sea is in question. These requirements do not apply in any case where compliance would create an imminent and serious threat to a person or vessel or to the extent that a vessel is restricted in its ability to maneuver and, because of the restriction, cannot comply.

Survey vessel crewmembers responsible for navigation duties will receive site-specific training on marine mammals sighting/reporting and vessel strike avoidance measures. Vessel strike avoidance measures would include the following, except under circumstances when complying with these requirements would put the safety of the vessel or crew at risk:

- Atlantic Shores will ensure that vessel operators and crew maintain a vigilant watch for cetaceans and pinnipeds and slow down, stop their vessels, or alter course, as appropriate and regardless of vessel size, to avoid striking any marine mammal. A single marine mammal at the surface may indicate the presence of additional submerged animals in the vicinity of the vessel; therefore, precautionary measures should always be exercised. A visual observer aboard the vessel must monitor a vessel strike avoidance zone around the vessel (species-specific distances detailed below). Visual observers monitoring the vessel strike avoidance zone may be third-party observers (*i.e.*, PSOs) or crew members, but crew members responsible for these duties must be provided

sufficient training to 1) distinguish marine mammal from other phenomena, and 2) broadly to identify a marine mammal as a right whale, other whale (defined in this context as sperm whales or baleen whales other than right whales), or other marine mammals. All vessels, regardless of size, must observe a 10-knot speed restriction in specific areas designated by NMFS for the protection of NARWs from vessel strikes, including seasonal management areas (SMAs) and dynamic management areas (DMAs) when in effect. See www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales for specific detail regarding these areas.

- All vessels must reduce their speed to 10-knots or less when mother/calf pairs, pods, or large assemblages of cetaceans are observed near a vessel;
- All vessels must maintain a minimum separation distance of 500 m (1,640 ft) from right whales and other ESA-listed species. If an ESA-listed species is sighted within the relevant separation distance, the vessel must steer a course away at 10-knots or less until the 500 m separation distance has been established. If a whale is observed but cannot be confirmed as a species that is not ESA-listed, the vessel operator must assume that it is an ESA-listed species and take appropriate action.
- All vessels must maintain a minimum separation distance of 100 m (328 ft) from non-ESA-listed baleen whales.
- All vessels must, to the maximum extent practicable, attempt to maintain a minimum separation distance of 50 m (164 ft) from all other marine mammals, with an understanding that, at times, this may not be possible (*e.g.*, for animals that approach the vessel, bow-riding species).
- When marine mammal are sighted while a vessel is underway, the vessel shall take action as necessary to avoid violating the relevant separation distance (*e.g.*, attempt to remain parallel to the animal's course, avoid excessive speed or abrupt

changes in direction until the animal has left the area, reduce speed and shift the engine to neutral). This does not apply to any vessel towing gear or any vessel that is navigationally constrained.

Members of the monitoring team will consult NMFS NARW reporting system and Whale Alert, daily and as able, for the presence of NARWs throughout survey operations, and for the establishment of a DMA. If NMFS should establish a DMA in the survey area during the survey, the vessels will abide by speed restrictions in the DMA.

Training

All PSOs must have completed a PSO training program and received NMFS approval to act as a PSO for geophysical surveys. Documentation of NMFS approval and most recent training certificates of individual PSOs' successful completion of a commercial PSO training course must be provided upon request. Further information can be found at www.fisheries.noaa.gov/national/endangered-species-conservation/protected-species-observers. In the event where third-party PSOs are not required, crew members serving as lookouts must receive training on protected species identification, vessel strike minimization procedures, how and when to communicate with the vessel captain, and reporting requirements.

Atlantic Shores shall instruct relevant vessel personnel with regard to the authority of the marine mammal monitoring team, and shall ensure that relevant vessel personnel and the marine mammal monitoring team participate in a joint onboard briefing (hereafter PSO briefing), led by the vessel operator and lead PSO, prior to beginning survey activities to ensure that responsibilities, communication procedures, marine mammal monitoring protocols, safety and operational procedures, and IHA requirements are clearly understood. This PSO briefing must be repeated when relevant new personnel (e.g., PSOs, acoustic source operator) join the survey operations before their responsibilities and work commences.

Survey-specific training will be conducted for all vessel crew prior to the start of a survey and during any changes in crew such that all survey personnel are fully aware and understand the mitigation, monitoring, and reporting requirements. All vessel crew members must be briefed in the identification of protected species that may occur in the survey area and in regulations and best practices for avoiding vessel collisions. Reference materials must be available aboard all survey vessels for identification of listed species. The expectation and process for reporting of protected species sighted during surveys must be clearly communicated and posted in highly visible locations aboard all survey vessels, so that there is an expectation for reporting to the designated vessel contact (such as the lookout or the vessel captain), as well as a communication channel and process for crew members to do so. Prior to implementation with vessel crews, the training program will be provided to NMFS for review and approval. Confirmation of the training and understanding of the requirements will be documented on a training course log sheet. Signing the log sheet will certify that the crew member understands and will comply with the necessary requirements throughout the survey activities.

Based on our evaluation of Atlantic Shores' measures, as well as other measures considered by NMFS, NMFS has determined that the required mitigation measures provide the means effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species

and of the level of taking or impacts on populations of marine mammals that are expected to be present in the action area. Effective reporting is critical to both compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density).
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas).
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors.
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks.
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat).
- Mitigation and monitoring effectiveness.

Monitoring Measures

Atlantic Shores must use independent, dedicated, trained PSOs, meaning that the PSOs must be employed by a third-party observer provider, must have no tasks other than to conduct observational effort, collect data, and communicate with and instruct relevant vessel crew with regard to the presence of marine mammal and mitigation requirements

(including brief alerts regarding maritime hazards), and must have successfully completed an approved PSO training course for geophysical surveys. Visual monitoring must be performed by qualified, NMFS-approved PSOs. PSO resumes must be provided to NMFS for review and approval prior to the start of survey activities.

PSO names must be provided to NMFS by the operator for review and confirmation of their approval for specific roles prior to commencement of the survey. For prospective PSOs not previously approved, or for PSOs whose approval is not current, NMFS must review and approve PSO qualifications. Resumes should include information related to relevant education, experience, and training, including dates, duration, location, and description of prior PSO experience. Resumes must be accompanied by relevant documentation of successful completion of necessary training.

NMFS may approve PSOs as conditional or unconditional. A conditionally-approved PSO may be one who is trained but has not yet attained the requisite experience. An unconditionally-approved PSO is one who has attained the necessary experience. For unconditional approval, the PSO must have a minimum of 90 days at sea performing the role during a geophysical survey, with the conclusion of the most recent relevant experience not more than 18 months previous.

At least one of the visual PSOs aboard the vessel must be unconditionally-approved. One unconditionally-approved visual PSO shall be designated as the lead for the entire PSO team. This lead should typically be the PSO with the most experience, would coordinate duty schedules and roles for the PSO team, and serve as primary point of contact for the vessel operator. To the maximum extent practicable, the duty schedule shall be planned such that unconditionally-approved PSOs are on duty with conditionally-approved PSOs.

PSOs must have successfully attained a bachelor's degree from an accredited college or university with a major in one of the natural sciences, a minimum of 30

semester hours or equivalent in the biological sciences, and at least one undergraduate course in math or statistics. The educational requirements may be waived if the PSO has acquired the relevant skills through alternate experience. Requests for such a waiver shall be submitted to NMFS and must include written justification. Alternate experience that may be considered includes, but is not limited to (1) secondary education and/or experience comparable to PSO duties; (2) previous work experience conducting academic, commercial, or government-sponsored marine mammal surveys; and (3) previous work experience as a PSO (PSO must be in good standing and demonstrate good performance of PSO duties).

PSOs must successfully complete relevant training, including completion of all required coursework and passing (80 percent or greater) a written and/or oral examination developed for the training program.

PSOs must coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts and shall conduct visual observations using binoculars or night-vision equipment and the naked eye while free from distractions and in a consistent, systematic, and diligent manner.

PSOs may be on watch for a maximum of four consecutive hours followed by a break of at least two hours between watches and may conduct a maximum of 12 hours of observation per 24-hour period.

Any observations of marine mammal by crew members aboard any vessel associated with the survey shall be relayed to the PSO team.

Atlantic Shores must work with the selected third-party PSO provider to ensure PSOs have all equipment (including backup equipment) needed to adequately perform necessary tasks, including accurate determination of distance and bearing to observed marine mammals, and to ensure that PSOs are capable of calibrating equipment as

necessary for accurate distance estimates and species identification. Such equipment, at a minimum, shall include:

- At least one thermal (infrared) image device suited for the marine environment;
- Reticle binoculars (*e.g.*, 7 x 50) of appropriate quality (at least one per PSO, plus backups);
- Global Positioning Units (GPS) (at least one plus backups);
- Digital cameras with a telephoto lens that is at least 300 millimeter (mm) or equivalent on a full-frame single lens reflex (SLR) (at least one plus backups). The camera or lens should also have an image stabilization system;
- Equipment necessary for accurate measurement of distances to marine mammal;
- Compasses (at least one plus backups);
- Means of communication among vessel crew and PSOs; and
- Any other tools deemed necessary to adequately and effectively perform PSO tasks.

The equipment specified above may be provided by an individual PSO, the third-party PSO provider, or the operator, but Atlantic Shores is responsible for ensuring PSOs have the proper equipment required to perform the duties specified in the IHA.

During good conditions (*e.g.*, daylight hours; Beaufort sea state 3 or less), PSOs shall conduct observations when the specified acoustic sources are not operating for comparison of sighting rates and behavior with and without use of the specified acoustic sources and between acquisition periods, to the maximum extent practicable.

The PSOs will be responsible for monitoring the waters surrounding each survey vessel to the farthest extent permitted by sighting conditions, including Exclusion Zones, during all HRG survey operations. PSOs will visually monitor and identify marine

mammals, including those approaching or entering the established Exclusion Zones during survey activities. It will be the responsibility of the PSO(s) on duty to communicate the presence of marine mammals as well as to communicate the action(s) that are necessary to ensure mitigation and monitoring requirements are implemented as appropriate.

Atlantic Shores plans to utilize six PSOs across each vessel to account for shift changes, with a total of 18 during these surveys (six PSOs per vessel x three vessels). At a minimum, during all HRG survey operations (*e.g.*, any day on which use of an HRG source is planned to occur), one PSO must be on duty during daylight operations on each survey vessel, conducting visual observations at all times on all active survey vessels during daylight hours (*i.e.*, from 30 minutes prior to sunrise through 30 minutes following sunset) and two PSOs will be on watch during nighttime operations. The PSO(s) would ensure 360° visual coverage around the vessel from the most appropriate observation posts and would conduct visual observations using binoculars and/or night vision goggles and the naked eye while free from distractions and in a consistent, systematic, and diligent manner. PSOs may be on watch for a maximum of four consecutive hours followed by a break of at least two hours between watches and may conduct a maximum of 12 hours of observation per 24-hr period. In cases where multiple vessels are surveying concurrently, any observations of marine mammals would be communicated to PSOs on all nearby survey vessels.

PSOs must be equipped with binoculars and have the ability to estimate distance and bearing to detect marine mammals, particularly in proximity to Exclusion Zones. Reticulated binoculars must also be available to PSOs for use as appropriate based on conditions and visibility to support the sighting and monitoring of marine mammals. During nighttime operations, night-vision goggles with thermal clip-ons and infrared

technology would be used. Position data would be recorded using hand-held or vessel GPS units for each sighting.

During good conditions (*e.g.*, daylight hours; Beaufort sea state (BSS) 3 or less), to the maximum extent practicable, PSOs would also conduct observations when the acoustic source is not operating for comparison of sighting rates and behavior with and without use of the active acoustic sources. Any observations of marine mammals by crew members aboard any vessel associated with the survey would be relayed to the PSO team. Data on all PSO observations would be recorded based on standard PSO collection requirements (see *Reporting Measures*). This would include dates, times, and locations of survey operations; dates and times of observations, location and weather; details of marine mammal sightings (*e.g.*, species, numbers, behavior); and details of any observed marine mammal behavior that occurs (*e.g.*, noted behavioral disturbances).

Reporting Measures

Atlantic Shores shall submit a draft comprehensive report on all activities and monitoring results within 90 days of the completion of the survey or expiration of the IHA, whichever comes sooner. The report must describe all activities conducted and sightings of marine mammals, must provide full documentation of methods, results, and interpretation pertaining to all monitoring, and must summarize the dates and locations of survey operations and all marine mammals sightings (dates, times, locations, activities, associated survey activities). The draft report shall also include geo-referenced, time-stamped vessel tracklines for all time periods during which acoustic sources were operating. Tracklines should include points recording any change in acoustic source status (*e.g.*, when the sources began operating, when they were turned off, or when they changed operational status such as from full array to single gun or vice versa). GIS files shall be provided in ESRI shapefile format and include the UTC date and time, latitude in decimal degrees, and longitude in decimal degrees. All coordinates shall be referenced to

the WGS84 geographic coordinate system. In addition to the report, all raw observational data shall be made available. The report must summarize the information submitted in interim monthly reports (if required) as well as additional data collected. A final report must be submitted within 30 days following resolution of any comments on the draft report. All draft and final marine mammal and acoustic monitoring reports must be submitted to *PR.ITP.MonitoringReports@noaa.gov* and *ITP.Potlock@noaa.gov*.

PSOs must use standardized electronic data forms to record data. PSOs shall record detailed information about any implementation of mitigation requirements, including the distance of marine mammal to the acoustic source and description of specific actions that ensued, the behavior of the animal(s), any observed changes in behavior before and after implementation of mitigation, and if shutdown was implemented, the length of time before any subsequent ramp-up of the acoustic source. If required mitigation was not implemented, PSOs should record a description of the circumstances. At a minimum, the following information must be recorded:

1. Vessel names (source vessel and other vessels associated with survey), vessel size and type, maximum speed capability of vessel;
2. Dates of departures and returns to port with port name;
3. The lease number;
4. PSO names and affiliations;
5. Date and participants of PSO briefings;
6. Visual monitoring equipment used;
7. PSO location on vessel and height of observation location above water surface;
8. Dates and times (Greenwich Mean Time) of survey on/off effort and times corresponding with PSO on/off effort;

9. Vessel location (decimal degrees) when survey effort begins and ends and vessel location at beginning and end of visual PSO duty shifts;
10. Vessel location at 30-second intervals if obtainable from data collection software, otherwise at practical regular interval
11. Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any change;
12. Water depth (if obtainable from data collection software);
13. Environmental conditions while on visual survey (at beginning and end of PSO shift and whenever conditions change significantly), including BSS and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon;
14. Factors that may contribute to impaired observations during each PSO shift change or as needed as environmental conditions change (*e.g.*, vessel traffic, equipment malfunctions); and
15. Survey activity information (and changes thereof), such as acoustic source power output while in operation, number and volume of airguns operating in an array, tow depth of an acoustic source, and any other notes of significance (*i.e.*, pre-start clearance, ramp-up, shutdown, testing, shooting, ramp-up completion, end of operations, streamers, etc.).

Upon visual observation of any marine mammal, the following information must be recorded:

1. Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);
2. Vessel/survey activity at time of sighting (*e.g.*, deploying, recovering, testing, shooting, data acquisition, other);
3. PSO who sighted the animal;

4. Time of sighting;
5. Initial detection method;
6. Sightings cue;
7. Vessel location at time of sighting (decimal degrees);
8. Direction of vessel's travel (compass direction);
9. Speed of the vessel(s) from which the observation was made;
10. Identification of the animal (*e.g.*, genus/species, lowest possible taxonomic level or unidentified); also note the composition of the group if there is a mix of species;
11. Species reliability (an indicator of confidence in identification);
12. Estimated distance to the animal and method of estimating distance;
13. Estimated number of animals (high/low/best);
14. Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, etc.);
15. Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars, or markings, shape and size of dorsal fin, shape of head, and blow characteristics);
16. Detailed behavior observations (*e.g.*, number of blows/breaths, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior before and after point of closest approach);
17. Mitigation actions; description of any actions implemented in response to the sighting (*e.g.*, delays, shutdowns, ramp-up, speed or course alteration, etc.) and time and location of the action;
18. Equipment operating during sighting;

19. Animal's closest point of approach and/or closest distance from the center point of the acoustic source; and

20. Description of any actions implemented in response to the sighting (*e.g.*, delays, shutdown, ramp-up) and time and location of the action.

If a NARW is observed at any time by PSOs or personnel on any survey vessels, during surveys or during vessel transit, Atlantic Shores must report the sighting information to the NMFS North Atlantic Right Whale Sighting Advisory System (866-755-6622) within two hours of occurrence, when practicable, or no later than 24 hours after occurrence. NARW sightings in any location may also be reported to the U.S. Coast Guard via channel 16 and through the WhaleAlert app (<https://www.whalealert.org>).

In the event that Atlantic Shores personnel discover an injured or dead marine mammal, regardless of the cause of injury or death. In the event that personnel involved in the survey activities discover an injured or dead marine mammal, Atlantic Shores must report the incident to NMFS as soon as feasible by phone (866-755-6622) and by email (nmfs.gar.stranding@noaa.gov and PR.ITP.MonitoringReports@noaa.gov) as soon as feasible. The report must include the following information:

1. Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
2. Species identification (if known) or description of the animal(s) involved;
3. Condition of the animal(s) (including carcass condition if the animal is dead);
4. Observed behaviors of the animal(s), if alive;
5. If available, photographs or video footage of the animal(s); and
6. General circumstances under which the animal was discovered.

In the unanticipated event of a ship strike of a marine mammal by any vessel involved in the activities covered by the IHA, Atlantic Shores must report the incident to

NMFS by phone (866-755-6622) and by email (*nmfs.gar.stranding@noaa.gov* and *PR.ITP.MonitoringReports@noaa.gov*) as soon as feasible.. The report would include the following information:

1. Time, date, and location (latitude/longitude) of the incident;
2. Species identification (if known) or description of the animal(s) involved;
3. Vessel's speed during and leading up to the incident;
4. Vessel's course/heading and what operations were being conducted (if applicable);
5. Status of all sound sources in use;
6. Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;
7. Environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;
8. Estimated size and length of animal that was struck;
9. Description of the behavior of the marine mammal immediately preceding and/or following the strike;
10. If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;
11. Estimated fate of the animal (*e.g.*, dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and
12. To the extent practicable, photographs or video footage of the animal(s).

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects

on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS’s implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, our analysis applies to all the species listed in Table 3, given that NMFS expects the anticipated effects of the survey activities to be similar in nature. Where there are meaningful differences between species or stocks - as is the case of the NARW - they are included as separate subsections below. NMFS does not anticipate that serious injury or mortality would occur as a result from HRG surveys, even in the absence of mitigation, and no serious injury or mortality will be authorized.

As discussed in the **Potential Effects** section of the proposed **Federal Register** Notice, non-auditory physical effects and vessel strike are not expected to occur. NMFS expects that all potential takes would be in the form of short-term Level B behavioral harassment in the form of temporary avoidance of the area or decreased foraging (if such activity was occurring), reactions that are considered to be of low severity and with no lasting biological consequences (*e.g.*, Southall *et al.*, 2007). Even repeated Level B harassment of some small subset of an overall stock is unlikely to result in any significant

realized decrease in viability for the affected individuals, and thus would not result in any adverse impact to the stock as a whole. As described above, Level A harassment is not expected to occur given the nature of the operations, the estimated size of the Level A harassment zones, and the required Exclusion Zone for certain activities. Because of this, no Level A harassment has been authorized.

In addition to being temporary, the maximum expected harassment zone around a survey vessel is 141 m. Although this distance is assumed for all survey activity in estimating take numbers authorized and evaluated here, in reality, the Applied Acoustics Dura-Spark 240 would likely not be used across the entire 24-hour period and across all 360 days. As noted in Table 7, the other acoustic sources Atlantic Shores has included in their application produce Level B harassment zones below 60 m. Therefore, the ensonified area surrounding each vessel is relatively small compared to the overall distribution of the animals in the area and their use of the habitat. Feeding behavior is not likely to be significantly impacted as prey species are mobile and are broadly distributed throughout the survey area; therefore, marine mammals that may be temporarily displaced during survey activities are expected to be able to resume foraging once they have moved away from areas with disturbing levels of underwater noise. Because of the temporary nature of the disturbance and the availability of similar habitat and resources in the surrounding area, the impacts to marine mammals and the food sources that they utilize are not expected to cause significant or long-term consequences for individual marine mammals or their populations.

There are no rookeries, mating or calving grounds known to be biologically important to marine mammals within the survey area and there are no feeding areas known to be biologically important to marine mammals within the survey area. There is no designated critical habitat for any ESA-listed marine mammals in the survey area.

North Atlantic Right Whales

The status of the NARW population is of heightened concern and, therefore, merits additional analysis. As noted previously, elevated NARW mortalities began in June 2017 and there is an active UME. Overall, preliminary findings support human interactions, specifically vessel strikes and entanglements, as the cause of death for the majority of right whales. As noted previously, Atlantic Shores' survey area overlaps a migratory corridor BIA for NARWs. We note that the survey area is relatively small compared with the migratory BIA area (approximately 5,868 km² and the NARW migratory BIA is 269,448 km²) and, importantly, that the effects of the activity are sufficiently low-level as to not meaningfully impact important behavior, including migratory behavior. Due to the fact that the described survey activities are temporary and the spatial extent of sound produced by the survey would be very small relative to the spatial extent of the available migratory habitat in the BIA, right whale migration is not expected to be impacted by the described activities. Further, given the relatively small size of the ensonified area (141 m), it is unlikely that prey availability would be adversely affected by HRG survey operations. Required vessel strike avoidance measures will also decrease risk of ship strike during migration; no ship strike is expected to occur during Atlantic Shores' survey activities. The 500 m Exclusion Zone for right whales is conservative, considering the Level B harassment isopleth for the most impactful acoustic source (*i.e.*, sparker) is estimated to be 141 m, and thereby minimizes the potential for behavioral harassment of this species.

As noted previously, Level A harassment is not expected due to the small PTS zones associated with HRG equipment types planned for use. The authorized levels of Level B harassment takes of NARW are not expected to exacerbate or compound upon the ongoing UME. The limited NARW Level B harassment takes to be authorized are expected to be of a short duration, and given the number of estimated takes, repeated exposures of the same individual are not expected. Further, given the relatively small size

of the ensonified area during Atlantic Shores' survey activities, it is unlikely that NARW prey availability would be adversely affected. Accordingly, NMFS does not anticipate NARWs takes that would result from Atlantic Shores' survey activities would impact annual rates of recruitment or survival. Thus, any takes that occur would not result in population level impacts.

Other Marine Mammal Species with Active UMEs

As noted previously, there are several active UMEs occurring in the vicinity of Atlantic Shores' survey area. Elevated humpback whale mortalities have occurred along the Atlantic coast from Maine through Florida since January 2016. Of the cases examined, approximately half had evidence of human interaction (ship strike or entanglement). The UME does not yet provide cause for concern regarding population-level impacts. Despite the UME, the relevant population of humpback whales (the West Indies breeding population, or DPS) remains stable at approximately 12,000 individuals.

Beginning in January 2017, elevated minke whale strandings have occurred along the Atlantic coast from Maine through South Carolina, with highest numbers in Massachusetts, Maine, and New York. This event does not provide cause for concern regarding population level impacts, as the likely population abundance is greater than 20,000 whales.

Elevated numbers of harbor seal and gray seal mortalities were first observed in July 2018 and have occurred across Maine, New Hampshire, and Massachusetts. Based on tests conducted so far, the main pathogen found in the seals is phocine distemper virus, although additional testing to identify other factors that may be involved in this UME are underway. The UME does not yet provide cause for concern regarding population-level impacts to any of these stocks. For harbor seals, the population abundance is over 75,000 and annual M/SI (350) is well below PBR (2,006) (Hayes *et al.*, 2020). The population abundance for gray seals in the United States is over 27,000,

with an estimated abundance, including seals in Canada, of approximately 450,000. In addition, the abundance of gray seals is likely increasing in the U.S. Atlantic as well as in Canada (Hayes *et al.*, 2020).

The required mitigation measures are expected to reduce the number and/or severity of authorized takes for all species listed in Tables 3 and 10, including those with active UMEs, to the level of least practicable adverse impact. In particular, they would provide animals the opportunity to move away from the sound source throughout the survey area before HRG survey equipment reaches full energy, thus preventing them from being exposed to sound levels that have the potential to cause injury (Level A harassment) or more severe Level B harassment. As discussed previously, take by Level A harassment (injury) is considered unlikely, even absent mitigation, based on the characteristics of the signals produced by the acoustic sources planned for use. Implementation of required mitigation would further reduce this potential. Therefore, NMFS is not authorizing any Level A harassment.

NMFS expects that takes would be in the form of short-term Level B behavioral harassment by way of brief startling reactions and/or temporary vacating of the area, or decreased foraging (if such activity was occurring)—reactions that (at the scale and intensity anticipated here) are considered to be of low severity, with no lasting biological consequences. Since both the sources and marine mammals are mobile, animals would only be exposed briefly to a small ensonified area that might result in take. Additionally, required mitigation measures would further reduce exposure to sound that could result in more severe behavioral harassment.

Biologically Important Areas for Other Species

As previously discussed, impacts from the survey are expected to be localized to the specific area of activity and only during periods of time where Atlantic Shores' acoustic sources are active. While areas of biological importance to fin whales,

humpback whales, and harbor seals can be found off the coast of New Jersey and New York, NMFS does not expect these activities to affect these areas. This is due to the combination of the mitigation and monitoring measures being required of Atlantic Shores as well as the location of these biologically important areas. All of these important areas are found outside of the range of this survey area, as is the case with fin whales and humpback whales (BIAs found further north), and, therefore, not expected to be impacted by Atlantic Shores' survey activities.

Three major haul-out sites exist for harbor seals within ECR North along New Jersey, including at Great Bay, Sand Hook, and Barnegat Inlet (CWFNJ, 2015). As hauled out seals would be out of the water, no in-water effects are expected.

Determinations

In summary and as described above, the following factors primarily support our determination that the impacts resulting from this activity are not expected to adversely affect the species or stock through effects on annual rates of recruitment or survival:

- No mortality or serious injury is anticipated nor will be authorized;
- No Level A harassment (PTS) is anticipated, even in the absence of mitigation measures, or will be authorized;
- Foraging success is not likely to be impacted as effects on species that serve as prey species for marine mammals from the survey are expected to be minimal;
- The availability of alternate areas of similar habitat value for marine mammals to temporarily vacate the survey area during the planned survey to avoid exposure to sounds from the activity;
- Take is anticipated to be by Level B behavioral harassment only consisting of brief startling reactions and/or temporary avoidance of the survey area;

- While the survey area is within areas noted as a migratory BIA for NARWs, the activities would occur in such a comparatively small area such that any avoidance of the survey area due to activities would not affect migration; and
- The described mitigation measures, including effective visual monitoring, and shutdowns, are expected to minimize potential impacts to marine mammals.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the monitoring and mitigation measures, NMFS finds that the total marine mammal take from the described survey activities will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted above, only small numbers of incidental take may be authorized under sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. When the predicted number of individuals to be taken is fewer than one third of the species or stock abundance, the take is considered to be of small numbers. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

NMFS authorizes incidental take (by Level B harassment only) of 15 marine mammal species (with 16 managed stocks). The total amount of takes authorized relative to the best available population abundance is less than 6 percent for all stocks (Table 10). Therefore, NMFS finds that small numbers of marine mammals may be taken relative to the estimated overall population abundances for those stocks.

Based on the analysis contained herein of the described activities (including the mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA: 16 U.S.C. 1531 *et seq.*) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS Office of Protected Resources (OPR) consults internally whenever we propose to authorize take for endangered or threatened species.

NMFS is authorizing the incidental take of four species of marine mammals which are listed under the ESA, including the North Atlantic right, fin, sei, and sperm whale, and has determined that these activities fall within the scope of activities analyzed in GARFO's programmatic consultation regarding geophysical surveys along the U.S. Atlantic coast in the three Atlantic Renewable Energy Regions (completed June 29, 2021; revised September 2021). The consultation concluded that NMFS' issuance of incidental take authorization related to these activities are not likely to adversely affect ESA-listed marine mammals.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216-6A, NMFS must review our action (*i.e.*, the issuance of an IHA) with respect to potential impacts on the human environment. This action is consistent with categories of activities identified in Categorical Exclusion B4 (IHAs with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has determined that the issuance of the final IHA qualifies to be categorically excluded from further NEPA review.

Authorization

As a result of these determinations, NMFS has issued an IHA to Atlantic Shores for conducting site characterization surveys off New York and New Jersey from April 20, 2022 through April 19, 2023, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. The final IHA and Atlantic Shores' IHA application can be found on NMFS' website at <https://www.fisheries.noaa.gov/action/incidental-take-authorization-atlantic-shores-offshore-wind-llc-marine-site-0>.

Dated: April 18, 2022.

Catherine Marzin,

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National Marine Fisheries Service.

